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OF
MEDICAL SCIENCE.

THE DUBLIN

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OF

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INCLUDING THE

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AUGUST 1, 1850.

PART I.
ORIGINAL COMMUNICATIONS.

ART. I.—*Contributions to Midwifery, No. VII. Observations on the Use of Chloroform in Conjunction with Ergot of Rye in Parturition.* By THOMAS EDWARD BEATTY, M. D., M. R. I. A., President of, and Professor of Midwifery to the Royal College of Surgeons in Ireland; Physician to the City of Dublin Hospital; Consulting Accoucheur to the South-eastern Lying-in Hospital; Vice-President of the Dublin Obstetrical Society; Honorary Member of the Obstetrical Society of Edinburgh, &c. &c.

THE observations contained in the following pages were communicated to the Dublin Obstetrical Society on two different occasions, the last being the monthly meeting held in April of the present year. From the cases detailed, it will appear that I have been an early labourer in the field of investigation respecting the merits of chloroform as an anæsthetic agent in parturition; but I have purposely abstained from publishing

the results of my experience in this most interesting and important research, until I had tested the accuracy of my conclusions by repeated investigations. In a matter like the present, where a variety of conflicting opinions are entertained, and where the usual, and even more than the usual amount of scepticism that attends the introduction of every improvement in medicine is found to prevail, it is the imperative duty of all who have had opportunities of ascertaining the value of the newly proposed means, to weigh well and consider in all its bearings the plan, or remedy, before the stamp of approval is placed upon it.

Actuated by such feelings, I have for a long time carefully investigated the value of chloroform as an anæsthetic agent in labour, and I have fully satisfied myself that it is possessed of the powers ascribed to it by the distinguished Professor, Dr. Simpson, who first employed and recommended it for this purpose; and moreover, that its employment, *when properly conducted*, is not attended with any injurious effects upon either mother or child. I have never seen any unpleasant result from it, and I believe that, out of the many thousand cases in which this agent has been employed in parturition, not a single case of death has occurred from its use. The immunity from danger in this class of cases may be ascribed to two causes, viz.:—First, the position of the patient, and second, the condition of her stomach with respect to repletion. The horizontal posture is that in which the peculiar effects of chloroform are most easily produced, and in which consequently the least quantity is required to produce anæsthesia. That is the position in which it is always administered to the parturient woman; while in many surgical operations, and particularly in tooth-drawing, the patient is placed in the upright position, when a larger quantity of the drug must be used, and in such cases it is that fatal results have most frequently occurred. With respect to the second cause, viz., the repletion of the stomach, it has been proved most satisfactorily,

that if chloroform be administered when the stomach is full, dangerous effects are more readily produced, and fatal consequences are more likely to ensue. Now in cases of parturition, it seldom happens that the use of chloroform is commenced until some hours have elapsed after the commencement of labour, and during all that time the patient is little disposed to take any food, so that when the time arrives at which it may be deemed prudent to administer chloroform, the stomach is empty, and thus another cause of immunity from danger is secured to the parturient woman. These circumstances have, no doubt, contributed to save the class of cases under consideration from injurious effects, and ought to encourage the timid and wavering to lay aside prejudice, and be guided by sound principles and experience. Let it not be forgotten, however, that the grand desideratum in the use of chloroform is its purity. Without this there is no security against unpleasant consequences. The pure agent is harmless when properly administered; but the impure, with similar precautions in the mode of using it, is sure to cause cough, spasm of the chest, delirium, and excitement, before the anæsthetic effects are produced, and headach, with congestion of the brain, after. Various means have been proposed for testing chloroform, but they were all difficult in their application, and unlikely to be employed by persons in active and extensive practice.

To Dr. W. Gregory we are indebted for the description of a method whereby any one, however engaged in practice or unused to chemical investigations, can for himself test every drop of chloroform he employs by a simple process.

Dr. Gregory's paper was read before the Royal Society of Edinburgh in March, 1850, and was subsequently printed in the Monthly Journal of that city(*a*). The paper is of great value, and should be carefully studied by all who are interested in the success of anæsthetic treatment. He ascribes the injurious effects of the chloroform in ordinary use to the presence

(*a*) Monthly Journal of Medical Science, p. 414, May, 1850.

of certain volatile oily impurities, which must be removed before it can be safely employed. These oils contain chlorine, have a disagreeable smell, and when inspired or smelt cause distressing headach and sickness. It is, therefore, highly probable that when these symptoms occur, as they do with some individuals, from the use of chloroform of more than the average goodness of quality, they depend on the presence of a trace of these poisonous oils. The test which Dr. Gregory recommends for these impurities is agitation of the chloroform with sulphuric acid, which should be quite colourless, pure, and of the full density of 1·840 at least. This, when agitated with the impure chloroform, becomes yellow or brown, from its action on the oils, which it chars and destroys. Any change of colour is easily seen by the contact with the colourless chloroform that floats above. Pure chloroform gives no colour to the acid. As this is a subject upon which too much stress cannot be laid, I will beg leave to transcribe Dr. Gregory's instructions for the purification of the adulterated drug:

"The chloroform having been tested as above, and found more or less impure, is to be agitated with oil of vitriol (half its volume will be sufficient), and allowed to remain in contact with the acid, of course in a clean, dry, stoppered bottle, and with occasional agitation, till the acid no longer becomes darker in colour. As long as the action is incomplete there will be seen after rest at the line of contact a darker ring. When this no longer appears, the chloroform may be drawn off, and for greater security once more acted on by a quarter of its volume of the acid, which should now remain colourless. It is now to be once more drawn off, and in a dry, stoppered bottle mixed with a little powdered peroxide of manganese, with which it is gently agitated, and left in contact until the odour of sulphurous acid is entirely destroyed, and the chloroform has acquired a mild, agreeable, fruity smell. It has then only to be poured off into a proper phial. It will now leave no disagreeable smell when evaporated on the hand.

"Mr. Kemp has observed, in repeating this process for me, the very curious fact, that as soon as the action is complete, and the oily impurities are destroyed, but not sooner, the chloroform, tested with the acid in a tube, exhibits a strongly convex surface downwards, where it rests on the pure acid, or, what is the same thing, the acid becomes concave at its upper surface. The smallest trace of impurity, not sufficient to affect the density of the chloroform, we have found to render the line of junction horizontal."

We have thus in our power a very simple means of testing and purifying chloroform before employing it; and if strict attention be paid to this most important point, I have little doubt much of the prejudice which still prevails against the use of this remedy will be removed. The purity of the drug being secured, the next important consideration is the manner of using it. I have always administered it on a pocket handkerchief, as was first advised by Dr. Simpson, and I see every reason to prefer this mode. It secures a due admixture of atmospheric air with the vapour of chloroform, a circumstance of great importance in the commencement of the process; for the slow and gradual admission of the vapour into the lungs, when the drug is pure, produces a weak anæsthetic effect at first, which, however, by a perseverance in the inhalation, becomes more and more intense, but by slow degrees, and in a manner that is quite discernible by the administrator, and can be arrested at any moment by withdrawing the handkerchief. This command over the quantity and quality of the inhaled vapour cannot, I think, be attained in the use of any of the inhalers that have been proposed.

The best and simplest of them is that invented by Dr. Fleming of this city; and in operative surgery, where the deepest form of anæsthesia is required, it answers perfectly, and with a very small consumption of the fluid. I do not propose to enter into a detailed description of the method of using this agent, this has been done already by Dr. Simpson, and by Dr.

Murphy of London, to the first of whom we are indebted for the introduction of this valuable addition to obstetric medicine, and to the latter for his able and impartial investigation of the subject. The practical and candid communication of Dr. Denham, published in this Journal, contributed in no small degree to place the value of this remedy in its true light.

I may just state generally that in ordinary cases I commence the administration when the os uteri is nearly dilated; then I pour about two drachms, at first, on the folded handkerchief, which is held at a distance of five or six inches from the patient's face as she lies on her side, and is slowly approached nearer and nearer until the edges of the handkerchief overlap the upper part of the cheek. That in ordinary labour I never produce insensibility, but as soon as the breathing becomes at all loud I remove the handkerchief and suffer the effects to subside, and then recommence the process. By this means the patient is never deprived of consciousness, but she is relieved from the agony of her labour pains, and also from that distressing and continuing ache in the back in the interval between the pains, of which some women complain so loudly. They are conscious of the uterine effort being made, and use the ordinary straining to assist it, but they suffer little or no inconvenience.

To be able to accomplish this with safety to the mother and her infant,—to hear a woman declare immediately after her delivery that her labour was heaven,—is no small triumph of art, and will be a lasting memorial of the genius and perseverance of Dr. Simpson. The stage of excitement which has been observed in some cases wherein chloroform was employed is, I have no doubt, attributable to the use of an impure specimen, and is not to be expected when the pure drug is employed in the manner just described. As a proof of the happy effect produced upon patients treated after this fashion, I may state that those who have once used the inhalation have called loudly and early for it in subsequent labours.

That injurious and fatal results have followed the use of chloroform in surgical practice I do not mean to deny, though no fatal case has ever occurred in midwifery, principally for the reasons already stated; but in the majority of the unfortunate cases, some satisfactory reason will be discovered to account for what occurred. The upright position, a full stomach, an over dose, or an impure medicine,—these, or some of them, will be found to have been present in such cases, and will be quite sufficient to satisfy a fair and candid inquirer that the blame should be laid on the incautious employer rather than on the agent employed. There is now no excuse if we fall into the mistakes that others have made, and that have been discovered and pointed out by the investigations of patient inquirers. Who now-a-days fears to prescribe opium, arsenic, or prussic acid to remove disease? and who will deny the deadly nature of these substances when incautiously used? All are aware of the powers of these poisons, but have learned by their own experience and that of others how to prepare them, and apportion the dose so as to keep within the limits of danger and yet secure the effects they wish to produce. And so it must be with chloroform: it is far too valuable and too powerful a substance to escape the strict scrutiny of science; our acquaintance with it is short, we cannot be supposed as yet to be familiar with all its properties; and it is no reason that a hasty judgment of condemnation should be passed upon it if it has been awkwardly and rashly employed by some in the infancy of the invention. I do not dwell for one moment upon the proposition that it is the duty of the obstetric physician to conduct his patient through her labour, with as much speed and as little suffering as are compatible with the safety of herself and her offspring. To argue upon a proposition so self-evident would be but waste of time and words. That we are possessed of an agent whereby this great object can be accomplished is proved by the many thousand cases in which chloroform has been employed.

The use and value of this drug in natural and operative cases has been fully set forth in the essays already mentioned, and I do not wish to occupy time and space by quoting from my case book instances of this description; suffice it to say, that I have employed it freely and with the greatest satisfaction to myself and my patients for more than two years. My principal object in this communication is to show how chloroform can be advantageously used in a class of cases that seem almost to forbid its employment, I allude to tedious labours produced by sluggishness of the uterus. If the first effect of a good dose of chloroform be the arrest of uterine action for a short time, a fact admitted by Dr. Murphy, and borne out by my own experience, it follows, as a matter of course, that if the pains be slow and weak, they will be the more surely and effectually interfered with. Now, it has happened to me to have patients under my care who were determined to inhale chloroform during labour, and who were most clamorous to get it at a time when the uterus was indisposed to act with vigour and celerity. To give the vapour, so long as matters thus stood, would have only increased the evils and protracted the labour; but by combining the use of ergot of rye with chloroform the difficulty was quite removed. In order to illustrate this practice, I will set forth some of the cases in which I have derived the greatest advantage from such a proceeding.

Case I.—Mrs. W. was attended by me for the first time in September, 1848, having had several children previously. During the last month of her pregnancy she was in a very distressing state of mental depression, and spoke continually with apprehension of danger and death in her approaching confinement. She expressed a strong desire to be treated with chloroform, and was quite pleased when I promised to let her have it. Labour came on at the proper time, commencing with slight pains, which continued, with little increase in strength or frequency, from an early hour in the morning until night.

She was in a state of great alarm and solicitude throughout the day, and remained thus until 10 o'clock, P. M., when, finding no improvement in the character of the labour, I gave her a drachm of ergot of rye in two doses, at an interval of a quarter of an hour. This soon established full uterine action, and in twenty minutes she was in strong labour. She now became very much excited and unruly, dashing herself about in the bed, and could not be prevailed on to remain quiet. To obtain the promised chloroform was her only object, and she clamoured loudly for its administration. Finding that labour was now fully established, and that the os uteri was nearly dilated, I commenced the use of chloroform from a pocket-handkerchief, on which I had poured one drachm of the fluid. This was at 11 o'clock, P. M., and almost immediately a complete calm ensued; she became tranquil and composed, and never afterwards betrayed the least want of temper. Her consciousness never deserted her. She continued to speak rationally all through, and expressed the greatest delight from the inhalation.

She was safely delivered of a living boy at half-past 12 o'clock, A. M. When asked what she thought of the medicine, she said it was heaven, that she was conscious of every pain, and could make the effort to bear down, but felt no suffering. This lady had been subject to intense nervous headachs after all her previous confinements, on which occasions the pain and intolerance of light were so great, that she was obliged to have every ray of light excluded from her chamber, and the most perfect stillness observed in the house. The attacks usually lasted from twenty-four to thirty-six hours, when they gradually subsided. On the present occasion, however, nothing of the kind occurred. When I called to pay my visit the following day, I found the shutters open, and the chamber full of light. My patient lay perfectly free from all pain, happy and thankful, saying she could scarcely believe it was all

over, so unlike was it to what she used to endure. Her recovery was the most rapid she ever made.

This case affords some points for remark: first, we observe the beneficial effects of ergot of rye in inducing uterine action in a case rendered tedious by inertness of that organ, and thus bringing the patient into a condition favourable for the use of chloroform. It was quite manifest at the time I gave the ergot that the uterus was not disposed to efficient contraction, and that many hours would in all probability elapse before healthy action would commence. By the influence of this drug, a long night of fruitless labour was avoided, and the patient was speedily relieved from suffering. Secondly, a remarkable feature in this case is the immunity from headach subsequently to delivery. This I think must be attributed to the soothing effect of the chloroform on the nervous system, acting as a sedative, and calming the excitement which formerly used to be so distressing.

Case II.—Mrs. F., pregnant for the first time. This lady was most anxious to use chloroform in her approaching labour, and I promised it to her if nothing occurred to cause me to refrain from its employment. When the pains commenced they were very slow and weak, and continued so for twenty hours, at the expiration of which time the os uteri was dilated to the size of a half-crown piece. The pelvis was roomy and the soft parts relaxed. She was most importunate to begin the inhalation; but, the pains not being sufficiently strong to warrant its administration, I gave the ergot of rye, which quickened uterine action, and in twenty minutes labour was well established. I then commenced the use of chloroform, under the influence of which she was kept for two hours, when she was delivered of a living boy.

Insensibility was never induced in this lady, she was conscious during the whole time, and frequently held the handkerchief herself during the pains, soliciting more chloroform.

and expressing the greatest relief and comfort from its use. One ounce of chloroform was consumed in this case.

Case III.—Mrs. C. In this case of first pregnancy, labour began by rupture of the membranes without pain. In six hours there was some faint uterine action, which continued to go on slowly for a long time. At length, at the end of eighteen hours, finding the os uteri soft and nearly dilated, I administered the usual dose of ergot of rye. This soon gave strength and effect to the pains, and I then began the use of the chloroform. It was continued for one hour and twenty minutes, when delivery of a living girl was accomplished, after a labour of twenty-one hours' duration. During the whole period of the inhalation this patient was not insensible, but enjoyed the happiness of being conscious of the uterine action, without feeling its pain.

Case IV.—Mrs. P., second pregnancy. On the occurrence of labour, the pains assumed a well-marked, steady character, and continued so for four hours, at which time the os uteri was nearly dilated, and the vagina cool and moist. Having expressed a desire to use inhalation, she was now permitted to commence, and in a short time the labour pains were suspended. This was followed by sleep, which was most sound for one hour. On awaking from this condition, the pains did not recommence so I determined upon giving her a dose of ergot of rye. She got a drachm in the usual way, which soon produced a marked change in the pains; they became more frequent and increased in strength, and when well established the chloroform was resumed.

There was now no interruption to the pains; the labour progressed most satisfactorily, and at the end of an hour from the recommencement of the inhalation the delivery was happily accomplished.

In this case the influence of the chloroform in suspending uterine action was most clearly shown; but when the contractions were induced by the artificial assistance of the ergot it

seemed to have no power to arrest them. This is a point of great value, for it shows the importance of combining these two valuable and powerful agents. In cases such as I have related, by causing the action of the ergot to precede that of the chloroform, we secure the patient against a suspension of her labour.

Case V.—Mrs. A., sixth pregnancy. A severe attack of uterine hemorrhage had attended this lady's previous confinement, two years before her present labour. Being anxious to prevent a similar event, I gave her a dose of ergot, when she was about seven hours in labour, and the os uteri and soft parts fully dilated. In twenty minutes the pains were very severe, and the vapour of chloroform was now inhaled with avidity. From the first time of the inhalation the pains were materially relieved, and soon disappeared, leaving the patient free from suffering, but not insensible. At times she appeared to slumber for a moment, and then woke again, saying she had a pleasant dream. She said she was conscious of the efforts which would have been pains, but she felt none; the child was born in twenty minutes from the first inhalation, and the duration of the labour was eight hours. The quantity of chloroform used was four drachms.

Case VI.—Mrs. P., second pregnancy. In this case there was considerable delay in the first stage of labour, owing to the head of the child presenting with the face to the pubis, and there being a very weak and inefficient amount of uterine action. After three hours had elapsed, and no evidence of increasing power being manifested, I administered a drachm of ergot in the usual manner. By its aid the uterus was stimulated to contraction, and the pains were rendered strong and efficacious. As soon as the labour was well established, she was permitted to commence the inhalation of chloroform. The labour progressed rapidly from this time, the head came down well through the pubis, and in half an hour from the first use of the vapour the child was safely delivered. This lady

remained conscious during the entire time of her labour. The inhalation seemed to exercise a very marked influence upon the condition of the soft parts, causing them to be relaxed rapidly and freely. The duration of labour in this case was five hours; the quantity of chloroform consumed was three drachms, and the time of its influence was only half an hour.

These cases will serve as a specimen of those that are met with in practice, where weak and slow power in the uterus produces a tedious labour, and where the patient, ill disposed to bear the pain attendant on even such a feeble uterine effort, is clamorous for the inhalation, so long looked for as the great source of relief from suffering. To proceed at once to the exhibition of chloroform in such cases, would certainly protract the labour to a great extent, and might also produce very unpleasant consequences. It has been said, that uterine hemorrhage has occurred more frequently in women who have inhaled chloroform, than is usual with those treated in the ordinary way; this does not coincide with my experience. However, it must strike any one conversant with such matters, that the uterus most likely to be relaxed after delivery is that in which the pains have been most infrequent and feeble. If chloroform alone be given in such a case, it would be very likely to increase the tendency to relaxation after delivery; but when its use is preceded by that of the ergot of rye, such danger is completely guarded against.

It will be seen in the above cases that in none of them were uterine pains suspended after the dose of ergot had been taken; the labour went on vigorously, notwithstanding the use of the anæsthetic agent; and in all of them delivery was accomplished with the most perfect safety to mother and child. Having thus, I trust, shown how chloroform may be employed in cases that at first appear to be quite unfit for it, let me again impress upon those who may employ these medicines the absolute necessity of making sure that the agents are pure and fit for use. In papers on the use of ergot of rye, published in

former volumes of this Journal, I have repeatedly expressed the opinion that when ergot fails to produce its proper effect it is owing to the use of an impure, spoiled, and therefore inert specimen. The ergot is a very delicate medicine, and is readily injured by either age or damp. It should never be kept more than twelve months, and it ought to be preserved in a perfectly dry situation. If good at first, and thus treated, it will not disappoint when brought into operation. The purity of chloroform is of the greatest importance, and this should be carefully looked to by the practitioner himself. He has now an easy method set before him, whereby he can test and purify the drug, and I feel confident that, if attention be paid to these important points, the approval of the profession will be given to the use of anæsthetics in midwifery, and a large amount of human suffering be thereby removed.

Art. II.—*Cases of Chronic Ulcer of the Stomach; with Observations.* By Cathcart Lees, M. B., Vice-President of the College of Physicians; Physician to the Meath Hospital; &c.

Having met with some interesting cases of chronic ulcer of the stomach, within the last few years, I think it may be useful to place them on record, along with such observations on their diagnosis and treatment as suggested themselves to my mind at the time of their occurrence. I do this the more especially as I have frequently observed that the study of diseases of the stomach does not in general meet with the attention it ought. Students are too much in the habit of attributing all disorders of the stomach either to cancer or dyspepsia; and yet, in the whole range of pathology, there is no subject more worthy of their observation, particularly as regards a correct diagnosis, on which the comfort and happiness, often the life of the patient may depend. There is no organ in the study of the affections of which we are so apt to be misled by the

symptoms, mere functional derangement being often manifested by the most severe pain and vomiting, while the most serious and fatal diseases may progress to ulceration and even perforation without any premonitory symptoms to direct our attention to the part. This makes the study of its diseases, as derived from symptoms, difficult and unsatisfactory. Our means of ascertaining its condition by physical examination are also very defective, unless there be a palpable tumour; and even when we can detect a tumour in the region of the stomach, it is often difficult to determine its locality with precision. The stomach cannot be explored by auscultation with the satisfactory results that we derive from an examination of the lungs or heart; we cannot trace its distinct outline, as in the case of the liver or spleen; and its secretions are not discharged separately and unmixed, like those of the kidney. In fact, in most cases, we are obliged to infer the nature of its diseases from the functional disturbance they occasion; but every practical physician constantly meets with cases showing from what various causes similar functional derangements ensue: thus, irritation of the brain, kidney, or uterus, gall-stones and obstruction of the bowels will cause vomiting more frequent and distressing than actual organic disease of the stomach itself; while, on the other hand, not one of these symptoms may be present, though ulceration is at the time destroying its coats and proceeding to perforation.

Although it is only within the last few years, comparatively speaking, that this disease has met with the attention it deserves,—Cruveilhier in France, and Baillie and Abercrombie in Great Britain having described its peculiarities and appearance,—yet the slightest acquaintance with our periodical literature shows that it is a disease of very frequent occurrence; and in the records of the Dublin Pathological Society we find that many examples of this lesion have been exhibited. I intend, however, to confine my observations chiefly to those examples which have occurred in my own practice, occasion-

ally referring to others that have been published; and I shall first record those cases in which fatal perforation took place, and subsequently those in which I have met with ulceration in the stomach, though no perforation occurred. I do not intend at present to treat of ulcerations resulting from cancerous or tubercular diseases, or those caused by the action of corrosive poisons on the stomach, but to describe that peculiar form of ulceration termed by Cruveilhier the simple chronic ulcer of the stomach, and more recently, by Rokitansky, the "perforating gastric ulcer," from its prevailing tendency to perforate the parietes of the stomach.

Case I.—Mary Freer, a delicate-looking woman, a servant, aged 48, married, and has had children (the last fourteen years ago), was admitted into the Meath Hospital, April 25, 1845, complaining of pain of the stomach, to which she had been occasionally subject for some months previously. She came to the hospital in a car, and was soon after attacked with a severe return of the pain in the stomach. The pain was relieved by *lying on the abdomen*, in which position I found her about two hours after her admission; she was then very pale, and perspiring; complained of severe pain in the epigastric region, not increased but rather relieved by pressure; the muscles of the abdomen were very rigid, spasmodically contracted; there was not any tendency to vomit; her tongue clean; pulse small, 140; she suffered greatly from wind, which she eructated with much relief to her sufferings. I ordered her to get the warm carminative mixture of the hospital, with the usual applications for flatulent colic. The first two doses gave her great relief from the distention and pain, which appeared to be caused by the wind; but as it still continued, she was given a dose of castor oil and turpentine, immediately after which the pain spread all over the abdomen; she then fell into a state of collapse, and died in twenty-six hours after the first seizure.

On examination ten hours after death, the abdomen was

tense and distended with gas. On opening the peritoneum, a large quantity of milky-looking serum, with flakes of lymph and oil floating in it, was perceived; the liver was very pale, covered with lymph, and adherent to the stomach; on separating them, a circular ulcer the size of a sixpence, situated midway on the anterior surface of the lesser curvature of the stomach, was to be seen; the edges of it appeared quite rounded, smooth, and thinned. On the inside of the stomach there was some thickening of tissues on one side of the ulcer, but no morbid deposit; the mucous membrane was removed to a much greater extent than the external opening indicated, but appeared quite free from disease in every other part.

This case, which was the first that I had met with, rather surprised me, for the character and situation of the pain, similar to what she had so repeatedly suffered from: the constant eructation of wind, which gave her great relief: the position she assumed, viz., lying on her stomach, pressing firmly against the bed: the spasmodic contraction of the abdominal muscles: and the fact of the pain not being increased by pressure on the abdomen,—were all circumstances indicative of its being merely a severe case of flatulent colic. The relief afforded by the carminative medicine seemed also to confirm this diagnosis, until the sudden aggravation of the symptoms, and the supervention of collapse, discovered the true nature of the case. The first attack of severe pain which came on after her admission to the hospital, was caused, I suppose, by rupture of the adhesions between the ulcer of the stomach and the surface of the liver, probably owing to the motion of the car. This teaches us how cautious we ought to be of exposing persons whom we suspect to be suffering from this form of disease to any uneasy or violent motion, as any effort or exertion may rupture adhesions if they have formed, and, as in this case, cause sudden and fatal peritonitis. A remarkable instance of this occurred to a patient of Dr. Law's, and was

described by him at a meeting(*a*) of the Dublin Pathological Society. The situation of the ulcer on the anterior surface of the stomach, and its position in contact with the under surface of the liver, may account for the fact of pressure relieving the pain, and also explain why relief was afforded by the carminative medicines; as when pressure was made on the epigastrium, it kept the perforation in close contact with the liver, and thus, forming a temporary support, not only prevented any communication between the stomach and cavity of the peritoneum, but allowed the carminatives to act, as they would have done on a sound stomach.

Case II.—I was sent for on Monday evening, December 4, to see a servant maid, aged 19, who had been taken suddenly ill about an hour previously. I found her just recovering from a state of collapse; her face was deadly pale, covered with cold perspiration, and expressive of great anxiety; she kept both her hands pressed firmly on the epigastrium, where she complained of severe burning pain; she made frequent efforts to vomit; and her extremities were cold. On trying to remove her hands she cried piteously, saying, "I shall die if you take away my hands." On examining the abdomen, the parietes felt tense and knotty, as if the muscles were spasmodically contracted; she kept her knees drawn up, and the least touch or motion caused her to scream. Her pulse was small and quick. I was told she had eaten a good dinner of meat and potatoes at two o'clock on that day; she took her tea at seven, and immediately after complained of a stinging pain in her stomach, but walked up from the kitchen to the nursery at the top of a lofty house, and immediately after she was attacked with violent pain in the stomach, uttered a piercing scream, grasped a woman who was sitting beside her, and fainted; on recovering from the faint, she vomited up her dinner, mixed with a dark-coloured substance, which, however,

(*a*) Dublin Quarterly Journal of Medical Science, New Series, vol. i. p. 242.

was thrown out previously to my arrival. On carefully considering all these circumstances, I came to the conclusion, that it was a case of perforation of the stomach, and therefore directed that she should be kept perfectly quiet, not allowed any drink, and to have a grain of opium every hour. The next morning she had completely recovered from the state of collapse, and presented the usual symptoms of a person labouring under severe idiopathic peritonitis; her tongue was dry, pulse small and quick, skin hot, abdomen tympanitic; the attempts to vomit still continuing; urine scanty, high-coloured, and turbid. She lay on her right side, with her legs drawn up; and her breathing was hurried, short, and thoracic. Sir Philip Crampton now saw her with me, and it was resolved to apply a few leeches and combine mercury with the opium. All pain and anxiety soon subsided, she enjoyed a state of comparative ease, and on the fourth day appeared to be doing very well; her pulse which had ranged from 120 to 140, now fell to 92; and she expressed a conviction that she should recover, although previously certain that she should die.

It was now agreed to suspend the use of opium for a time, as she appeared to be slightly narcotized, and as her bowels had not been opened since the attack. She was at this time, left alone for a few moments, when, feeling a desire to evacuate the bowels, she got up to the night chair, and passed a quantity of a dark grumous substance. She then returned to bed, but was immediately attacked with violent pain in the abdomen; the efforts to vomit returned, the pulse increased in frequency, and, notwithstanding the most assiduous treatment, the disease progressed, and the patient died in great suffering on the fifth day afterwards,—nine days from the first attack.

Dr. Aquilla Smith and Dr. Frazer assisted me in the *post mortem* examination. On opening the abdomen we found evidence of intense and general peritonitis, the intestines greatly distended with gas, highly vascular, and covered with lymph; in several places deposits of purulent matter resem-

bling abscesses. The left lobe of the liver was adherent to the stomach, and on separating them a perforation the size of a sixpence came into view; it was round, situated on the anterior surface of the lesser curvature of the stomach, near the cardiac orifice; the edges were smooth and rounded; the mucous membrane removed to a greater extent than the serous; a clot of blood closed the aperture; the stomach, viewed from within, looked as if a piece had been punched out of it, but there was no morbid appearance round the ulcer, nor any trace of disease on the mucous membrane, except that it had a soft, pulpy aspect. No extravasation of blood, or of the contents of the stomach, had taken place into the cavity of the peritoneum. The uterus was remarkably small, but there was no disease observable in it or in any other of the viscera.

This case presents many points of interest, and especially with regard to the diagnosis: I at first felt undecided as to the real nature of the disease, whether it was mere hysterical colic or whether the symptoms were caused by perforation. I had attended this girl some time previously for constitutional derangement with suspension of the menstrual discharge; she then suffered from great debility, loss of appetite, cough, with a constant sensation of tightness and soreness along the sternum, yet she never complained of pain in the stomach, but said that she always felt stuffed up after any food, even the smallest quantity, and that she often thought that what she did take did not reach her stomach, but stopped at a point opposite the lower third of the sternum. She had a very pallid, waxy appearance, and a loud venous murmur could be heard in the jugular veins. Thus, in support of the view of this attack being hysterical, were the previous state of the constitution, the opinion of the ladies of the house who all felt assured that it was an hysterical attack, but, above all, the fact that *deep* and *firm* pressure over the epigastrium gave relief to the pain, for she kept both her own and the nurse's hands pressed strongly over this part, screaming when I attempted to remove them. But, on the

other hand, the previous state of her constitution might predispose her to ulceration of the stomach, as many are of opinion that the condition of the system which induces disordered menstruation also predisposes to this disease, and have hence termed it a menstrual ulcer; but the rapidity and violence of the attack, the fainting, and subsequent vomiting of the dark-coloured substance, and the state of the abdominal muscles, made me come to the conclusion that it was a case of perforation of the stomach, and the primary effect of the treatment, together with the *post mortem* examination, proves that I was correct in this view.

An interesting feature in her case also, was her complete recovery from the state of collapse, a circumstance I believe of very rare occurrence in perforation of the stomach; and another very important fact was the apparent remission of all the bad symptoms on the fourth day. This apparent remission, which at the time induced us to suspend the use of the opium, proves the necessity and wisdom of the advice given by Louis, in his work on gastro-enteritis, when, in speaking of peritonitis from perforation of the intestines, occurring in the course of typhoid fever, he mentions a case where the patient lived for seven days from the first evidence of peritonitis, and in which the symptoms, though very severe at first, subsided on the fourth day, and such apparent improvement took place, that doubts would have been entertained of the correctness of the diagnosis if the first symptoms had not been so well marked. "In confirming," says Louis, "those diagnostic symptoms which we have established, this observation is of great importance as connected with prognosis, since it shows that when once the signs of perforation have occurred we must not depart from our diagnosis, even after an arrest of symptoms, and an apparent amelioration of even several days' standing."

Now though, in the case I have just reported, all the dangerous and fatal symptoms rapidly supervened on a temporary relaxation of the strict treatment we had hitherto observed, par-

ticularly with regard to keeping the patient perfectly quiet, yet the examination of the body afterwards showed that there was nothing to prevent recovery taking place, if sufficient time had been allowed for firm adhesions to have formed, as none of the contents of the stomach were effused into the peritoneum, and as the ulcer was situated on the anterior surface of the stomach, in close contact with the under surface of the liver,—a very favourable place for adhesions to form between them and thus prevent communication between the stomach and cavity of the peritoneum. Thus a recovery might have ensued, similar to that reported by Dr. Hughes in the fourth volume of the second series of Guy's Hospital Reports:—a young woman, a servant, was attacked suddenly with all the symptoms of perforation of the stomach, about four hours after her dinner, which merely consisted of gruel; she was seen very soon after the attack, was put under the opiate treatment, kept in the horizontal position till the twenty-first day, supported with injections of beef-tea and laudanum till the twentieth day, when a little rice and yolk of egg were given. She was discharged cured on the fifty-second day, and continued well for four months, when, having eaten a quantity of fruit, she was soon after attacked with symptoms of perforation, similar to those of the previous seizure, and died in nineteen hours. On examination of the body, the usual evidence of acute peritonitis was seen, with a quantity of gooseberries and cherries effused into the peritoneum among turbid fluid(*a*).

(*a*) There were three ulcerations in the stomach: one, which had perforated the viscus and caused the peritonitis, by allowing the contents of the stomach to escape; another in process of ulceration; and a well-marked cicatrix of a third, most probably of that which had caused such a fearful train of symptoms four months previously, and from which she had recovered. The fact of the cicatrix being found there is of importance, as Mr. Langston Parker, who has written a very valuable memoir on the subject, is of opinion that cicatrices of these ulcers have never been met with in females, and seems to consider there is some essential difference between these ulcers occurring in males and females.

Mr. John Hamilton, Surgeon to the Richmond Hospital, has also given me the particulars of a case which occurred in a young woman under his care, who had suffered for five years from gastrodynia, but appeared to be in perfect health, when, after taking a hearty meal of apples and porter, she was suddenly attacked with violent pain in the stomach, which extended rapidly over the abdomen, and she died in twenty-four hours. The contents of the stomach were found in the peritoneum, mixed with lymph and turbid fluid. A large ulcer was discovered on the anterior surface of the lesser curvature of the stomach, near the cardiac orifice; it had formed adhesions to the under surface of the liver, but had been ruptured by the over distention of the stomach.

The rapidity of these two cases, and their uncontrollable progress to a fatal termination, can be easily accounted for by the *post mortem* appearances, particularly the foreign substances found in the peritoneal cavity. They are, in my opinion, quite sufficient to explain what has appeared a difficulty to some writers on this subject, even to Louis himself, namely, "why the power of resisting the same causes of death is so variable in individuals, under apparently analogous circumstances?" The true explanation appears to me to be this, that the peritonitis is not caused so much by the mere perforation of the stomach or intestines, as by the escape of foreign substances into the peritoneal cavity. Thus, in my first case, symptoms set in violently and increased rapidly immediately after taking the oil and turpentine, which was found floating in the cavity of the peritoneum; while in my second case the length of time she survived, viz., 288 hours from the first attack, can be accounted for by the perforation not having taken place for some hours after dinner, and no solid foreign substances having passed into the cavity of the peritoneum, for we could not detect any on the examination. In Dr. Hughes' case, the first attack, from which the patient recovered, occurred four hours after her dinner, which consisted only of gruel; whereas the second

attack, which proved rapidly fatal, took place when her stomach was full, and the fatal peritonitis was caused by the presence of the solid fruit in the peritoneal cavity.

A careful consideration of the circumstances under which the symptoms of perforation occur will be of great use in forming our prognosis; as, if they occur immediately after a meal, the probability, indeed almost certainty, is that the resulting peritonitis will be rapidly fatal; but if the stomach has been empty when the perforation takes place, we need not despair of recovery, for morbid anatomy shows us that these perforations are constantly closed by adhesions to some of the neighbouring viscera, as the liver, pancreas, colon, &c. Dr. Stokes has seen patients recover after presenting all the symptoms of perforation of the ilium after enteritis, so that we need not despair in even the most formidable cases; but to insure success, our treatment must be decisive, and consist in the steadily continued and free use of opium, as has been advised by Drs. Graves and Stokes(*a*) in the low forms of peritonitis and in perforations of the intestines.

The rationale of the efficacy of opium in these cases has been explained by them to consist in "the preventing of effusion into the peritoneal cavity, by allaying the peristaltic action of the intestine, and thus gaining time for the effusion of lymph, and the formation of adhesions round the perforation." This, which appears to be the true *modus operandi* of opium in these cases, has not received the attention it merits. Thus Dr. Alison(*b*), in his practical remarks respecting the relative value of bleeding, calomel, and opium, in subduing peritonitis, maintained that "the mere pain of peritonitis often killed the patient by a sympathetic affection of the circulation; that whatever blunts the intensity of the sensations, and procures ease and sleep to the patient, will lessen the degree of that

(*a*) Graves' Clinical Medicine, by Neligan, vol. ii. p. 244; Dublin Hospital Reports, vol. v.

(*b*) History of Medicine.

sympathetic affection of the circulating system;" so that opium should always be combined with calomel and bleeding, and thus pain and inflammation be subdued *pari passu.*

The writer of the biographical sketch of Dr. Chambers, which appeared in the Lancet of May 25, 1850, does not approve of this method of treating the disease; and states, as a proof of Dr. Chambers' energetic practice, particularly in reference to peritonitis, "that he never left his patient to be destroyed by the *vis necatrix*, while waiting for the *vis medicatrix*." That in his (Dr. Chambers') opinion, the pain depended on the inflammation; and to give opium in quantity would be to put a mask between the physician and the disease, behind which the latter might destroy the patient unperceived. He preferred to deal with pathology openly, and not to remove the pain as a palliative measure, but rather by quelling the inflammation, which was the cause of the pain. But this writer seems to have forgotton that peritonitis may arise under different circumstances, requiring very different treatment; for when it is the result of perforation opium should be freely given, not as a palliative to mask the disease, but as a powerful and direct remedial agent.

I am indebted to my friend Dr. Mayne, physician to the South Dublin Union Workhouse, for the particulars of a very interesting case of ulcer of the duodenum, which I think may be placed in the same class with the ulcers I have described as occurring in the stomach. A delicate-looking woman, a servant, was admitted into the hospital under his care, May 12, 1850, suffering under great dyspnœa, short cough, with scanty frothy expectoration, and orthopnœa; her countenance was anxious; she sat up in bed, leaning on her elbows; and the slightest change of position induced an indescribable dread of suffocation. Her aspect was that of a person in the advanced stage of pericarditis, but the state of the pulse, which was quiet, seemed opposed to the idea that she was suffering under any acute inflammation. She stated that her illness commenced suddenly on the

previous evening with a sensation of suffocation and a feeling of uneasiness in the epigastrium, but she did not suffer from either nausea or vomiting, nor had she previously any affection of her stomach. She complained on admission of some uneasiness in the epigastrium, and there was slight tenderness over this part, but the abdomen generally was free from pain and tenderness. The aspect of the woman, and the dyspnœa, induced the belief that her disease was thoracic, and accordingly her chest was examined most carefully, with the confident expectation of detecting physical signs of either pulmonary or cardiac disease, but no morbid sound could be heard. The epigastric tenderness, the orthopnœa, and sense of suffocation, seemed to indicate the pericardium as the source of the distress, and accordingly it was considered to be a case of incipient pericarditis, not as yet sufficiently advanced for the development of the characteristic physical signs. She continued in the same state, notwithstanding active treatment, till the 17th, that is for five days, when at 7 P. M. she was suddenly seized with severe pain in the epigastrium, and frequent retchings, but without any vomiting. The pain spread over the abdomen, which now became rapidly tympanitic, and exquisitely tender on pressure. Dr. Mayne and Mr. Shannon, who previously, notwithstanding repeated and careful examination, were unable to arrive at any satisfactory diagnosis, at once recognised in these new symptoms positive indications of perforation of some part of the intestinal tube. The treatment by large doses of opium was immediately employed, but without the smallest effect in controlling the disease; her countenance became sunken; hiccough set in; the extremities became cold; she sank rapidly, and died at 3 P. M. on the 18th, twenty hours after the sudden attack of severe pain in the abdomen.

Dr. Mayne and Mr. Shannon, who had informed me of the case, and of their diagnosis, kindly invited me to attend at the examination of the body. On laying open the abdomen, the usual appearances of acute general peritonitis presented them-

selves, with a quantity of very yellowish-brown fluid in the peritoneal cavity. The liver appeared rather pale, similar to what we often meet with in scrofulous subjects, and was connected to the stomach and intestines by lymph. On lifting up the right lobe of the liver, we saw a ragged oval opening, with dark edges, the size of a sixpence, on the anterior surface of the superior transverse portion of the duodenum, near its junction with the pylorus. Through this opening the communication had taken place between the duodenum and general cavity of the peritoneum. On separating the stomach and duodenum from their attachments, and cutting them open, we found the mucous membrane of the stomach vascular and corrugated, but there was no appearance of ulceration; while the inner surface of the superior transverse portion of the duodenum presented on its posterior wall a large elongated ulcer, which had quite destroyed the mucous membrane, and on its anterior wall was another ulcer, which had perforated the intestine, as above described.

The lungs were congested, but there were no evidences of disease at all sufficient to account for the extreme difficulty of breathing, and there were no traces of disease in either the heart or pericardium; so that Dr. Mayne considered,—and I think he was justified in his opinion,—that the disturbance of the respiratory function was purely sympathetic. A remarkable feature in this case also was, that she had never (as far as we could learn, and Dr. Mayne instituted a careful inquiry on the point) suffered from any marked stomach or abdominal symptoms; and though for a considerable period of time she had been an inmate of the institution, yet she had never applied for medical relief till the present attack, about seven days before her death. This case is particularly interesting, from its bearing on the question of the morbid sympathies of the stomach with other internal organs. We know how frequently the organs of respiration are affected in cases of acute inflammatory affections of the intestines and peritoneum; the

relation of the diaphragm to the two cavities, and the nervous connexion by the branches of the par vagum, will sufficiently account for this. In children, particularly, hurried and puerile respiration is often the most marked symptom of affections of the head or of the intestines, and in these cases the junior practitioner, if not forewarned, is likely to be led into error, the severe and prominent pulmonary symptoms masking the true seat of the disease. Dr. Langston Parker has justly remarked(*a*): "If no other use were ever to be made of the stethoscope, its value in ascertaining the state of the lung, when the respiration is hurried or quickened from causes not affecting the integrity of the lung or its membranes, but depending upon other causes, would entitle it to be ranked amongst our most important means of diagnosis." In this case of Dr. Mayne's, the value of the stethoscope as a negative aid in diagnosis was very striking; for though all the symptoms were referrible (and that in the most marked manner) to some affection of the heart or lungs, yet the absence of physical signs of disease in these organs, put Dr. Mayne and Mr. Shannon on their guard, and caused them to give a very cautious prognosis at an early period of the case. The great obscurity and insidiousness of the symptoms can be accounted for by the ulcer being situated in the duodenum, as in this position it was not exposed to the direct contact of the food previously to digestion, to the sudden alterations of temperature of substances taken into the stomach, or to the action of the gastric juice; nor did it undergo the constant change of position, to which an ulcer in the stomach is always subjected, from the motion which goes on during digestion; so that ulcers situated in the duodenum may continue for a long time, and even proceed to perforation, without exciting any suspicion of such a fearful disease, till the fatal moment arrives. This occurred in the case of Mr. Somes, the Member for Dartmouth, who was suddenly attacked in

(*a*) The Stomach and its Morbid States, p. 25

the House of Commons with severe pain in the abdomen; rapid collapse followed, and he died in twenty-four hours with all the symptoms of peritonitis from perforation. On examination of the body there was discovered a perforating ulcer of the duodenum, with evidence of acute peritonitis(*a*).

But even chronic ulcer of the stomach may last for a long time, and not disclose itself by any prominent symptom till fatal perforation takes place. I have exhibited at the Pathological Society two specimens of this form of the disease; one of them occurred in a very talented individual, who had gained a scholarship in Trinity College, but who died insane at the age of 36. He had been under my care for some months previously to his death, suffering from flatulence; his appetite was very great, but he gradually became emaciated, and died from exhaustion, though taking plenty of nourishment up to the last day of his life. I found a large chronic ulcer in the lesser curvature of the stomach, near the pylorus, which had quite destroyed the mucous and muscular coats, and laid bare the peritoneum. The other case occurred in the practice of Dr. Shannon, who kindly permitted me to exhibit it to the Society. A man aged 60 was under his care for hydrocele, when he was suddenly seized with severe pain in the belly, followed by rapid collapse, and death in nine hours from the first seizure. He had never made any complaint referrible to the stomach, yet on examination a large chronic ulcer was found, which had perforated its coats, and caused general acute peritonitis.

Professor Smith exhibited to the Pathological Society a specimen and cast of a chronic ulcer of the stomach, that had perforated that organ, and was plugged up by the pancreas, which formed the floor of the ulcer. The patient, a female, had neither vomiting, thirst, epigastric tenderness, nor any symptom of stomach disease, but was much emaciated(*b*).

(*a*) Lancet, July 18, 1846.

(*b*) Dublin Quarterly Journal of Medical Science, New Series, vol. i. p. 234.

In all these cases the only indication of disease of the stomach was the extreme emaciation. Even when perforation has occurred, the diagnosis is sometimes exceedingly difficult, as was well illustrated in a case exhibited by Dr. Stokes at the Pathological Society, in which the perforation was only ascertained after death, though he was "under observation for fourteen days, suffering from symptoms referrible to the diaphragm, and to the left side, but with intermissions, during which his appetite was good, and his pulse feeble. On examination after death, a chronic ulcer was found in the lesser curvature of the stomach, which had perforated its coats, and opened into an abnormal sac of the peritoneum"(*a*). Dr. Stokes states candidly, that the perforation was not diagnosed during life; "the symptoms, the intermissions, and the absence of general peritonitis, explained the cause of the deficient diagnosis."

From a careful consideration of the cases which have come within my own observation, and those recorded by others, we must confess, that the positive diagnosis of this disease, particularly in the early stages, is still very deficient. Dr. Edwards Crisp, who has written a short, but excellent paper(*b*) on this subject, states that "when there is violent pain in the epigastric region after eating, flatulence, pyrosis, and pain in the left side, especially when accompanied by a chlorotic condition of system, the presence of ulceration may be suspected."

Dr. Abercrombie remarks, that "this affection may run its course, almost to the last period, without vomiting, and with scarcely any symptom, except the uneasiness which is produced by eating, and which subsides entirely a few hours after a meal." And Dr. Seymour of London, who, from his great experience as physician to St. George's Hospital for eighteen years, and also from his extensive private practice, has had much opportunity of meeting with this form of disease, writes, that "the chronic ulcer of the stomach is not to be distinguished

(*a*) Dublin Quarterly Journal of Medical Science, New Series, vol. ii. p. 504.
(*b*) Lancet, August 5, 1843.

by any known signs, unless vomiting of blood, which has followed long-continued symptoms of pain and distress in the stomach, has taken place"(*a*).

The character of the pain may serve as some guide to us, for it generally comes on after eating even the mildest kinds of food; in fact, the patient will often tell you, " If I could live without food I should feel quite well." Solid meat causes most distress, but the pain is not necessarily attended with the acidity which is so remarkable in many cases of mere functional disease. We cannot distinguish any hardness or fulness in the epigastric region, nor is there any redness of the tongue indicating any serious irritation going on in the stomach. In many cases the sufferers do not lose flesh, as in cancerous affections, except when the ulcer is very large, and by its size interferes with nutrition, particularly in those cases where the pancreas forms the floor of the ulcer.

Dr. Osborne(*b*) of this city is of opinion, " that the diagnosis of the situation of the ulcer depends on the effect which the patient's position has in either producing or relieving this pain;" and that there is a remission of pain as long as the patient is in the erect posture, as then the fluids of the stomach are not in contact with the ulcer. I am not competent to speak of this means of diagnosis in an early stage of the disease; but after perforation has occurred this rule certainly does not hold good, as in my first case I found the patient lying on her stomach; and in the case reported by Dr. Hughes, the patient on both occasions, after the symptoms of perforation had occurred, was found lying on her stomach, though in both these cases an ulcer was found on the anterior surface of the organ.

The symptoms of ulcer in the stomach are often very slight, merely those of ordinary dyspepsia; but they may be very obscure, or even entirely latent, so as not to cause any uneasiness

(*a*) On severe Diseases of the Human Body, vol. i. p. 17.

(*b*) Dublin Journal of Medical Science, First Series, vol. xxvii. p. 357.

to either the patient or his friends, until an attack of profuse hematemesis, or the sudden and fearful symptoms of perforation, reveal the nature of the case. When this lesion occurs, the individual is generally attacked with sudden severe pain in the epigastrium, not preceded by rigors. The pain spreads rapidly over the abdomen, and when it has occurred soon after a meal, it has led to the suspicion of poisoning; but as a medico-legal fact, it is important to remember, that those cases in which sudden perforation has occurred have seldom been preceded by any severe precursory symptom. The pain is generally excruciating; there is often vomiting; death mostly takes place in from eighteen to thirty-six hours; and on examining the body after death, we find evidence of severe acute peritonitis,—effusion of serous fluid, often of a milky, whey-like appearance, and the intestines and viscera glued together with coagulable lymph, in some parts forming pouches containing purulent fluid, like abscesses. In some cases the contents of the stomach are found extravasated into the peritoneal cavity. At first there is nothing apparent to account for all this mischief; but on separating the liver from the stomach, or turning this viscus over on its axis, we then discover an opening of an oval or rounded form, generally from half an inch to an inch in diameter, situated in or near the lesser curvature, between the cardia and pylorus, and more frequently on the posterior than on the anterior surface. The peritoneal opening is generally small, circular, and thinned off to a sharp edge, so that there is no appearance of laceration or ulceration; it appears as if the piece had been punched out. On looking at the stomach from within, the coats appear as if gradually thinned off; the mucous coat being removed to a greater extent than the muscular, and this again than the peritoneal coat. The border of the aperture is generally quite smooth, as if the coats of the stomach in this part had been gradually thinned off by a slow process of absorption, otherwise we should expect to find the margin fringed and irregular. The condition of the

coats of the stomach round the circumference of the ulcer varies, in some cases being thickened, hard, and even cartilaginous. This appearance, when present, is a strong indication that the ulceration is of a chronic character. In other cases there is no thickening of the coats of the stomach, and the border of the ulcer may be very slightly or not at all raised above the surface of the surrounding membrane. The mucous membrane is sometimes pale, or sometimes exhibits patches of inflammatory or congestive redness, or extravasations of blood in distinct patches; sometimes the margin of the aperture is slightly reddened, while all the rest of the stomach appears to be healthy. The size of the ulcer varies from that of a four-pence to that of a half-crown, but is sometimes much larger, particularly in those cases of apparently very long standing, when adhesions have formed to neighbouring organs, as to the liver or pancreas, of which Cruveilhier gives a very good representation. Their shape is generally circular; but as they extend they assume an elliptical form, and often become very irregular. If they extend in the transverse diameter of the stomach, they cause alteration in its shape, their cicatrization being often followed by considerable deformities of the viscus, or by annular strictures. Rokitansky states that this species of ulcer is in no way connected with either gastritis or cancer, and I am of the same opinion, although the thickness and hardness which are sometimes met with surrounding these ulcers has induced some writers to consider them as being of a cancerous nature; but the muscular fibres being commonly traceable unaltered to the very margin of the ulcer, there being no morbid deposition, and no secondary infection of the system, as in the case of cancer,—all militate against this opinion, which is further refuted by the consideration of the period of life at which they generally occur, and the fact that they are curable, as they are often found cicatrized: of this the case of the illustrious Beclard is a well-known example. Some writers have supposed these ulcers to be

syphilitic, from their peculiar appearance; but they are neither cancerous nor syphilitic, nor the results of chronic gastritis. I consider this ulcer of the stomach to be a peculiar specific form of disease, essentially chronic in its nature, of the cause, the origin, and the *early* progress of which we know but little. It appears to attack most frequently young unmarried females, from sixteen to twenty-three years of age, particularly servants and dressmakers; but it is not exclusively confined to females, or to any particular period of life.

Andral states, that women who have been recently delivered, and persons who have undergone severe operations, are likewise subject to it. There have also been several specimens of this form of ulcer exhibited at the Dublin Pathological Society, which occurred in both males and females, varying in age from 17 to 60, so that it is not confined to either sex or to any particular age.

With regard to its terminations, the most frequent mode in which an ulcer of the stomach terminates, particularly when it attacks young females, is by perforation of all the coats, thus allowing the contents of the stomach to pass freely into the peritoneal cavity, and induce fatal peritonitis, as occurred in most of the cases I have recorded. This result, however, may be prevented by adhesions having taken place between the peritoneal surface of the ulcer and some of the adjacent viscera.

Secondly, it may terminate by a profuse hematemesis, which sometimes causes immediate death, but more frequently after repeated attacks; the ulcer having in its progress opened into the trunk of either the coronary or splenic artery, and thus caused exhausting and fatal hemorrhage.

Thirdly, it may wear out the patient by exhaustion from dyspepsia and harassing cardialgia, impairing the powers of digestion, interfering with nutrition, and producing gradual emaciation and death.

Fourthly, the ulcer may cicatrize and the patient recover, either temporarily, as in the case recorded by Dr. Hughes, or

permanently, as occurred in the case of Beclard. But in these latter cases we have two evils to dread: first, the recurrence of the disease from any exciting causes; secondly, the rupture of the cicatrix by distention of the stomach with solid food, liquids, or flatus, or in making any exertion, so that a patient who has once suffered from this disease is never to be pronounced free from danger.

As to treatment: in the early periods, we should, above all things, be careful not to allow the stomach to become distended by any quantity of solid food or liquid; in fact patients with this disease should never make a regular meal, but take small quantities of mild light food, chiefly farinaceous, with milk and yolk of eggs. Once the symptoms of perforation have occurred our treatment must be very decided;—perfect rest in the horizontal position, no food or drink allowed for some days, except a teaspoonful of water occasionally; solid opium to be given by the mouth, in doses sufficiently large and frequently repeated to keep the system under its influence, so that by its sedative action on the gastro-intestinal organs, time may be afforded for adhesions to form, and effusion into the peritoneal cavity thus prevented. If administered in the form of enema it might be safer, and less likely to derange the action of the stomach; and if given in this way might even act better in controlling the peristaltic action of the stomach and intestines, for, in the first instance, we prescribe opium not so much with the view of curing peritonitis as of anticipating and preventing the escape of the contents of the stomach, from which the peritonitis in such cases arises. By pursuing this plan of treatment, at the same time confining the patient strictly to the horizontal position, so as to prevent any exertion or motion, and supporting the system by injections of strong beef-tea, for the first ten or twelve days, we shall have a reasonable chance of recovery, provided the perforation has not occurred soon after a meal. For as patients have survived after presenting all the symptoms of peritonitis from perforation of the intestines

occurring even in the course of severe diseases, in which the constitution generally has suffered, and where morbid anatomy teaches us that several ulcers are usually present, we may, with much greater reason, hope that recovery should take place when, as is usually the case in perforation from ulcer of the stomach, we have only one ulcer to deal with, when the constitution has not suffered from the debilitating effects of any previous disease, and when, if the stomach has been empty at the time of the perforation, and can be kept so till adhesions have formed with some of the viscera, the perforation may be plugged up, cicatrization take place, and the processes of digestion and nutrition proceed as before.

Art. III.—*On the Constitutional Origin of Erysipelas, and its Treatment; illustrated by Cases.* By Albert J. Walsh, M. D., F. R. C. S. I., one of the Medical Officers of St. Peter's Dispensary.

In the following remarks I wish to direct attention briefly to a few points connected with the causation and treatment of erysipelas. The contagious nature of the disease, now so generally admitted, the fact of its being at times in a very marked degree epidemic, the manner in which it so frequently complicates other affections, as well as the question of treatment, which even yet does not appear to be definitely settled, all render the subject worthy of careful investigation. Within the last seven years a considerable number of cases of this disease have come under my notice, and as some of them presented features of interest, I have thought it well to lay them before the profession, with some general remarks on the subject.

To enter at any length into a consideration of this disease would exceed my present limits; I shall therefore confine my observations to those forms of the affection which have come more immediately under my own notice, and which may be

classed under the heads of traumatic and idiopathic. In the first instance I will give the details of a few cases, each of which presented some points of interest; and, in conclusion, make such remarks as appear to me to be called for.

Case I.—*Erysipelas of the Head and Face.*—I saw for the first time, on the 29th of January, 1850, a gentleman aged 50: his nose, the right side of his face, and part of the left, were greatly swollen, and of a dark red colour; the skin was hot and dry, the tongue covered with yellow fur, and the pulse 130; he complained of severe pain in the head, and had been raving all night; and there were great irritability and restlessness. He had been suffering much anxiety of mind, and was just recovering from influenza, followed by a severe neuralgic affection in the left side of the face. On Sunday, 27th January, he had a severe rigor, headach, and vomiting; and on Monday morning the right side of the face was a little swelled. I ordered him to take one grain of tartar emetic in a quart of whey in the twenty-four hours.

Second day. After the second dose of the medicine he was vomited,—what he threw off was dark green bile; and after the fifth dose he was well purged. The erysipelas has extended, but not with the same rapidity; a number of small vesicles came out during the night, and are filled with a light-coloured serum; tongue clean; pulse 96, softer; raved a little, was very restless, having had but about an hour's sleep during the night. The tartar emetic was ordered to be continued in barley-water.

Third day. The medicine has had no visible effect; the erysipelas is spreading very slowly on the left side, not on the right; he can now open the right eye; the left ear is very much swollen, but not painful; tongue cleaning; pulse 78; skin soft and cool; bowels freed twice copiously; slept four hours during the night, and raved very little. The tartar emetic to be continued.

Fourth day. The erysipelas is still extending on the left side and over the back of the neck; bowels not freed since;

urine not so high coloured; pulse 78, fuller; skin cool and moist; got six hours' sleep; all restlessness gone. The tartar emetic to be still continued.

Fifth day. The swelling of the face is much reduced, the skin shrivelling; he had a profuse perspiration during the night; pulse 78, small; bowels have not been freed; tongue not cleaning. He was ordered to take five grains of blue pill immediately; and in six hours after the following draught:—powdered rhubarb, twelve grains; calcined magnesia, ten grains; tincture of rhubarb, two drachms; peppermint water, ten drachms: to be repeated if necessary; the tartar emetic to be also continued.

Sixth day. The bowels were freed three times after the second draught; the erysipelatous inflammation is in the same state; pulse 78, weak; tongue cleaning. Tartar emetic to be omitted; to take two table-spoonfuls of the following mixture three times a day:—sulphate of quina, eight grains; dilute sulphuric acid, half a drachm; water, eight ounces: mix.

Seventh day. The swelling much decreased; slept well last night; tongue cleaning; bowels regular; urine not so high coloured; pulse 76, stronger. The mixture to be continued; to have beef-tea.

Eighth day. Had a very good night; there is a slight swelling on the forehead, but it has declined all over the face and head; skin coming off in scales; tongue cleaning; bowels free; pulse 72, fuller.

Tenth day. Has been gradually improving; the swelling almost gone; the urine depositing a thick sediment; pulse 72. The mixture to be continued; to have beef-tea and wine.

Twelfth day. The skin is coming off the head and face; the tongue clean; bowels regular; pulse 72; slept well; to get up to-morrow.

Case II.—*Erysipelas of Head and Face after severe Influenza.*—I saw Mrs. ——, aged 68, for the first time, on the 27th of February, 1850. Her face and head were greatly swollen, of

a deep red colour, and both eyes closed; there was a number of small vesicles, filled with straw-coloured serum, on the cheeks; she had constant raving and restlessness; great heat of skin; tongue covered with yellow fur; bowels confined; urine scanty; thirst; the pulse was so irregular that I could not count it, but it was very frequent. She had just recovered from a long and severe attack of influenza; on the 25th she got into a violent passion, after which she was seized with shivering and sickness of stomach, and the erysipelas appeared on the next morning; she has been suffering from disease of the heart for fifteen years. One grain of tartar emetic dissolved in a quart of barley-water was ordered to be taken in the twenty-four hours.

Second day. The medicine only vomited her once, when she threw off a quantity of yellow bile; her bowels were five times moved; tongue not so yellow; skin cooler; pulse irregular, as it always is, about 78; did not rave so much; can see a little with the right eye; erysipelas extending somewhat. The tartar emetic solution was ordered to be continued.

Third day. Face not so swollen; skin shrivelling; can open both eyes; tongue dry in centre, cleaning at the edges; pulse very irregular, about 78; did not rave so much; bowels affected three times; bilious matter passed. The tartar emetic to be continued.

Fourth day. The swelling still decreasing; no raving; slept much better; tongue cleaning, not so dry in the centre; bowels three times affected; bilious matter still passing; pulse 84, weaker. The tartar emetic to be continued, and to take a table-spoonful of the following mixture every fourth hour:—sulphate of quina, eight grains; dilute sulphuric acid, half a drachm; water, eight ounces: mix.

Fifth day. The swelling still more reduced; the skin shrivelled, and desquamation taking place; can open both eyes well; tongue clean and moist; bowels freed only once;

pulse 72, fuller, but very irregular. Tartar emetic to be omitted, quina mixture to be continued, and to have chicken broth.

Seventh day. The swelling has quite gone; skin desquamating; tongue clean and moist; pulse 72, irregular; bowels regular; appetite returning; convalescent.

Case III.—*Erysipelas of the Head and Face, with Typhoid Symptoms.*—Miss ——, aged 24, of a scrofulous diathesis, sent for me on the 14th November, 1846. Her head and face were greatly swollen, the latter of a dark purple colour; she was unable to open her eyes, from the great œdema of the lids; tongue covered with dark brown fur, and protruded with difficulty; constant raving; pulse 130, small and weak; bowels freed by medicine which she had taken; unable to sit up without assistance. On the 7th November she was seized with vomiting and pain in the head and face, after which the head began to swell, and she rapidly got worse. She was ordered to take two table-spoonfuls of the following mixture every third hour:—camphor mixture, five ounces; water of the acetate of ammonia, two ounces; carbonate of ammonia, one drachm; Hoffman's anodyne liquor, three drachms; syrup, five drachms: mix. One grain of tartar emetic to be dissolved in a quart of whey, to be drank in the twenty-four hours.

Second day. The medicine did not sicken her, but it acted on her bowels, and she discharged a quantity of bilious matter; got a little sleep, did not rave so much; pulse 100, fuller; can open her eyes a little; the erysipelas has extended to the neck. The stimulant mixture to be continued; the tartar emetic in barley-water to be repeated; to get some mutton broth.

Third day. Complains greatly of difficulty in swallowing; head and face greatly reduced in size; the erysipelas has extended down to the neck; pulse stronger; bowels regular; slept well, very little raving; tongue cleaning. The stimulant

mixture and tartar emetic to be repeated; mutton broth to be omitted; to have arrow-root and wine.

Fourth day. Raving has ceased; slept well; pulse stronger; swelling much reduced, but there is great fulness and hardness under the lower jaw, and it is very tender to the touch. The tartar emetic and stimulant mixture to be continued; a cataplasm to be applied to the lower jaw.

Fifth day. Desquamation commencing in the face; slept very well; pulse stronger, 78; bowels not free; swelling less, and not so hard or tender to the touch; tongue almost clean. Tartar emetic to be omitted; the stimulating mixture, arrow-root, and wine, to be continued. To have one table-spoonful of castor oil at night.

Seventh day. Bowels have been too much acted on by the oil, in consequence of which she is weaker; pulse 80, not so strong; swelling under the jaw less, and becoming more circumscribed; appetite bad. Two table-spoonfuls of the following mixture three times a day:—sulphate of quina, eight grains; dilute sulphuric acid, half a drachm; water, eight ounces: mix. Cataplasm to be continued.

Fourteenth day. The same treatment was continued up to this date, when the abscess under the jaw was opened; there was a great discharge of healthy pus, and from this period she made rapid progress, and was able to go out early in December.

Case IV.—*Erysipelas of Head and Face.*—Mary Kinsela, aged 58, was attacked with erysipelas on the 19th of October, 1849; I first saw her on the 22nd. Her face was greatly swollen, of a dark red colour, and both eyes closed. She complains of the face and head being very sore all over; very bitter taste in her mouth; tongue furred; has a severe purging of bilious matter; pulse 96, small. She had been fretting much, and her bowels had been confined for some time previously to the 19th, when she was attacked with bowel complaint and severe shivering; that night the right eye and side of the face

commenced to swell, and continued to increase up to the time I saw her. One grain of tartar emetic was directed to be dissolved in a quart of barley-water; a wine-glassful of this to be taken every second hour.

Second day. The tartar emetic had no effect until the fifth dose, when it both purged and vomited her; the swelling is much less in the right side of the face, but the left side is a little more swollen; she can open her right eye a little; the bitter taste in the mouth still remains; the tartar emetic solution to be continued.

Third day. The medicine did not act on her stomach and bowels; the swelling of the face is not so great, and the redness is almost gone; pulse 80, small; tongue clean. The tartar emetic was omitted, and she was ordered an ounce of the following mixture three times daily:—sulphate of quina, eight grains; dilute sulphuric acid, half a drachm; water, eight ounces: mix.

Fourth day. The swelling much diminished; she can open both eyes; sleeps well; tongue clean; pulse 80, fuller; appetite returning; desquamation commencing; bowels regular.

Ninth day. The swelling all gone; the skin has come off in scales; tongue clean; pulse regular; convalescent,

Case V.—*Erysipelas attacking the Penis of a Child, one Year and a half old.*—I saw Francis Owen, aged one year and a half, on the 2nd February, 1850; the penis was greatly swollen, of a bright red colour, and very painful, so that he would not suffer it to be touched; there was a slight discharge of matter from between the glans and prepuce; pulse very quick; skin hot; great restlessness; tongue covered with white fur. Two days before he had sickness of stomach, and great restlessness, after which the penis began to swell. His little brother, two years older, had a similar attack in Liverpool, which was treated by incisions. Half a grain of tartar emetic was dissolved in a quart of barley-water, and of this a wine-glassful was to be given every second hour.

Second day. The first dose both vomited and purged him, and what was thrown off the stomach was quite green; the penis not so swollen, nor so painful; the fever much less; pulse only 84; tongue cleaning. Tartar emetic to be continued.

Fourth day. The swelling is gone, except just at the prepuce, which is still slightly swollen; pulse regular; tongue clean; bowels free, and the discharge natural. Half an ounce of infusion of gentian to be taken three times a day.

Sixth day. The swelling quite gone; the penis natural size; the glans can be exposed, and is quite healthy. The child is otherwise quite well.

Case VI.—*Erysipelas first attacking the Pharynx, suddenly disappearing from it, and seizing on the Nose and Face.*—I was sent for to see Elizabeth Maguire, aged 15, on the 10th May, 1848, and found her in the following state:—face flushed; skin hot and dry; tongue covered with thick yellow fur; severe headach; slight raving; sickness of stomach; great soreness of throat, which was of a deep red colour, extending over the entire pharynx. She had sickness of stomach and headach, with great chilliness, for the last two days. She was ordered to take at bed-time, jalap, ten grains, calomel, two grains, and Dover's powder, four grains, in a bolus, and to apply the liniment of ammonia to the throat externally.

Second day. Her nose is now greatly swollen, and of a deep red colour; the swelling extending over the forehead and both cheeks; there are a few vesicles on the nose; all redness and swelling of the throat gone. Tongue covered with yellow fur; bowels moved by bolus; headach and sickness of stomach continue; pulse quick. A grain of tartar emetic to be dissolved in a quart of barley-water; a wine-glassful to be taken every second hour.

Third day. The tartar emetic both vomited and purged her, after the first dose; the swelling of the nose is much reduced, and it is of a saffron hue. The swelling of the forehead

is almost gone, and the skin pale; tongue cleaning; skin moist; pulse not so quick. Solution of tartar emetic to be continued.

Fourth day. The medicine did not make her sick since, nor did it affect her bowels. The redness all gone; the swelling nearly so; tongue cleaning rapidly; bowels not free. Tartar emetic to be omitted, and the following draught to be taken immediately, viz.:—powdered rhubarb, twelve grains; carbonate of magnesia, ten grains; tincture of rhubarb, a drachm; peppermint water, an ounce: mix.

Sixth day. Her bowels were freed by the draught; all appearance of erysipelas is gone; tongue clean; appetite improving; there is a great discharge of matter from her nose. She was ordered to take a table-spoonful of the following mixture three times a day:—sulphate of quina, four grains; dilute sulphuric acid, half a drachm; water, six ounces.

Eighth day. The discharge from the nose has ceased; she is now quite recovered from the attack.

Case VII.—*Erysipelas of Face and Head in a Child eighteen Months old.*—I was sent for to see Catherine Schoales, aged one year and a half, on Friday, 27th April, 1849. She was affected with great swelling of the forehead and right eye, extending to the left eye-lid. The skin was of a shining red colour, pitting on pressure; the right eye was closed; the tongue was covered with white fur, and the pulse was quick; the bowels had been freed by medicine. She had been uneasy and restless for a few days; and on the 26th her stomach was very sick, after which the swelling and redness made their appearance. She was ordered half a grain of tartar emetic in a quart of whey, to be taken within twenty-four hours.

Second day. The medicine made her very sick at first, and purged her. The swelling of eye-lid not so great, and the redness of forehead less; tongue cleaning at edges; she is not so hot, and she can eat a little to-day. Tartar emetic to be continued.

Third day. The swelling is gone from both eyes, and there is only a slight swelling on the forehead, with very little redness. The medicine had no effect. One table-spoonful of infusion of gentian was ordered to be taken three times a day.

Fourth day. The swelling and redness are completely gone; the skin is desquamating; and the child is quite well.

Case VIII.—*Erysipelas of the Hand and Arm.*—I saw J. Murtha, aged 65, for the first time, on the 27th of November, 1848, and found him labouring under severe erysipelas of the right hand and arm, which were greatly swollen, of a deep red colour, and pitting on pressure; tongue covered with adhesive fur; pulse quick and full; skin hot and dry. He was attacked the day before with headach, shivering, and sickness of stomach. This is the third attack; he had one in his leg four years previously; and last year he had it in the same hand and arm which is now affected. It seemed to have been then caused by infection, his wife having had an attack of it in her head at that time. Ordered one grain of tartar emetic in a quart of whey, to be drank in cupfuls within the twenty-four hours.

Second day. The medicine made his stomach very sick, but did not affect his bowels. The swelling has extended very little further, and the hand and arm are not so swollen; bowels not freed; tongue a little cleaner. Ordered a draught of castor oil and tincture of rhubarb.

Third day. The swelling much reduced; bowels very little moved by medicine; says he is much better. Tartar emetic solution to be continued.

Fourth day. The swelling and redness still diminishing; tongue cleaning rapidly; bowels not freed; pulse nearly regular. Tartar emetic to be continued; to take three drachms of the compound powder of jalap at bed-time.

Sixth day. Swelling almost gone; slight redness; bowels have been well freed; tongue cleaner; says he is quite well, except some stiffness in his hand. Tartar emetic to be omitted;

to take an ounce three times a day of the following mixture:—sulphate of quina, eight grains; dilute sulphuric acid, one drachm; water, eight ounces.

Ninth day. The swelling and redness are gone, the skin coming off the hand; tongue clean; pulse regular; able to go to work.

Case IX.—*Traumatic Erysipelas of the Leg.*—I was sent for to see John Byrne, aged 20, a carpenter, on the 3rd of January, 1849, on account of great swelling and redness of his left leg; it was twice as large as the right, and pitted on pressure; and he complained of a burning sensation in it: there was a wound a little below the knee. Pulse quick and full; tongue white; skin very hot. He had already taken some purgative medicine. On the 20th of December he cut himself, just below the left knee, with an adze; but he continued to work until the 31st, when he was attacked with severe shivering and sickness of stomach, and on the 1st of January the leg began to swell. He was ordered one grain of tartar emetic in a quart of whey, to be drank within twenty-four hours, and a large cataplasm to be applied over the wound and leg.

Second day. The medicine did not vomit him, nor did it affect his bowels, but he was nauseated; the swelling is much reduced; pulse not so quick nor full; tongue cleaning. Remedies to be continued.

Third day. Swelling greatly reduced; redness almost gone; no pain or uneasiness anywhere; pulse quiet; bowels not freed. He was ordered cathartic pills of rhubarb and blue pill; the tartar emetic to be continued.

Fourth day. There is only slight œdema remaining in the foot; the entire leg has a shrivelled look; no desquamation; wound healing; bowels free; pulse regular. He was ordered to take an ounce of the following mixture three times a day:—sulphate of quina, eight grains; dilute sulphuric acid, half a drachm; water, eight ounces.

Sixth day. He says he is quite well, and wants to go to his work: there are no remains of the erysipelas except the shrivelled appearance of the leg; the wound is almost healed.

Case X.—*Traumatic Erysipelas of Hand and Arm.*—I was sent for to see Lydia Verdon, aged 17, on 17th October, 1849; the right hand and arm were greatly swollen, and of a dark red colour, with large bullæ near the elbow; face flushed; tongue covered with ash-coloured fur; bowels confined; headach; bitter taste in the mouth; pulse small and quick. She had a large wart on the middle finger of the right hand, which was very sore; she had used this hand much in washing, and had not been in very good health previously; on the 15th she suffered from sickness and shivering, when her hand commenced to swell. Ordered a grain of tartar emetic to be dissolved in a quart of barley-water, of which a wine-glassful was to be taken every second hour.

Second day. She had taken only ŏne dose of the medicine, which vomited and purged her severely; what she passed was very yellow; the arm is not so tense nor so dark coloured; the erysipelas has not extended, and the pain is much less; pulse the same; tongue cleaning. Tartar emetic to be continued.

Third day. The swelling is much reduced; the skin shrivelling, and she can move the fingers; the bitter taste in the mouth almost gone; pulse fuller; tongue cleaning; bowels regular. Tartar emetic to be continued.

Fourth day. The swelling has disappeared, except at the posterior part of the elbow; tongue clean; bitter taste in the mouth gone; bowels regular; pulse 72. Tartar emetic to be continued; to take half an ounce of the following mixture three times a day:—sulphate of quina, eight grains; dilute sulphuric acid, twelve drops; water, eight ounces.

Sixth day. The swelling is quite gone; skin coming off the arm and hand; she can use the hand.

Case XI.—*Traumatic Erysipelas of the Left Leg, supervening on a large indolent Ulcer, in a Man who was paralysed for*

twenty Years.—William Sampson, aged 45, sent for me on Tuesday, 5th March, 1850, on account of a great swelling of the left leg, which is much larger than the other, and of a deep mottled red colour; the disease extended from the foot to an inch above the knee, and was here marked by a well-defined line; the ulcer is dark coloured, with elevated edges, and has a sanious discharge; he complains of great pain; tongue thickly coated with yellow fur; bowels confined; pulse very small and frequent; no sleep. He has been paralysed for the last twenty years, and has suffered from the ulcer for a long period; he had not been very well for some time, and on Sunday, 3rd March, he was seized with shivering and vomiting; what he threw off was yellow bile; that night his left leg commenced to swell. He was ordered to take a wine-glassful every second hour of a solution consisting of a grain of tartar emetic dissolved in a quart of barley-water.

Second day. The solution vomited him, and he threw off a quantity of yellow bile, the consistence of yolk of egg; pulse 120, fuller; tongue cleaner; leg not so swollen, nor so dark-coloured; the pain not so severe; he got some sleep last night. Tartar emetic was directed to be continued; and he was ordered cathartic pills of rhubarb and blue pill.

Third day. The swelling had increased again, and the red line was much extended; his face was flushed, and every appearance indicated that the disease had made rapid advance; this surprised me much, and upon asking about his medicine he said that he had taken none since I was there, nor would he do so. I then got him admitted into hospital, where he was treated by incisions, and made a very slow recovery.

CASE XII.—I was sent for to see Anne Spencer, aged 37, on 7th June, 1848, on account of an attack of erysipelas of the left side of the face, which, together with the nose, was greatly swollen, of a deep red colour, and very painful to the touch; she suffers from constant vomiting; the tongue is thickly furred with a yellow coat; skin hot; great thirst. She had been suf-

fering excruciating pain of an intermittent character in the left orbit (she had lost the eye about two years previously), since the 3rd of June, and on the evening of the 6th she was seized with vomiting, when the erysipelas made its appearance, and the pain left the eye. A grain of tartar emetic to be dissolved in a quart of barley-water; a wine-glassful every second hour.

Second day. The first dose of the medicine was vomited immediately, and her bowels were moved soon afterwards; the vomiting and purging continued until the third dose, and then they stopped, and she says she is now a great deal better; all sickness gone; tongue much cleaner. This case ran a very favourable course. The patient only got two grains of tartar emetic, and was then put on the sulphate of quina mixture; but she insisted on my getting her into hospital, from which she returned well in less than a fortnight.

Case XIII.—*Erysipelas of the upper Part of the Trunk, extending to the Face and Head.*—I was called to see Mrs. Brown, aged 36, on the 22nd June, 1844, on account of great swelling of the anterior and upper part of the chest and neck, extending round to the back of the neck; the parts were of a dark red colour, and pitted on pressure; pulse quick; tongue thickly furred; no raving; skin burning hot. Four days previously she felt herself very unwell, with headach, bitter taste in her mouth, and, two days before I saw her, had a severe shivering fit, with vomiting, after which a slight red swelling, attended with a burning sensation, made its appearance near the breasts. Ordered one grain of tartar emetic in a quart of whey; a cupful of this frequently, so that the entire should be taken within the twenty-four hours.

Second day. The medicine made her very sick, and she threw up a quantity of green bile; her bowels were only slightly freed; there is no improvement in the appearance of the erysipelas, which has extended to the back of the head and face. Tartar emetic solution to be continued.

Third day. The medicine did not make her sick; she says she is much better; the erysipelas has extended over the face and head, but it has disappeared on the chest and the lower part of the neck; she complains much of headach; bowels not free; pulse not so quick, and tongue cleaner. Tartar emetic to be continued, and a purgative of castor oil and tincture of rhubarb to be taken immediately.

Fourth day. Bowels freed; headach gone; tongue cleaner; pulse quiet; she complains of soreness in the back of the head, though there is no swelling there. The tartar emetic made her sick a second time: to be continued.

Fifth day. The swelling almost gone from the face; desquamation taking place on the chest and neck; pulse very weak; she complains of great prostration. Tartar emetic to be omitted; to have a wine-glassful of the following mixture three times daily:—sulphate of quina, eight grains; dilute sulphuric acid, one drachm; water, eight ounces.

Eleventh day. She gradually gained strength since last report, and desquamation has taken place over the entire face.

Sixteenth day. All swelling and redness have disappeared; pulse fuller; tongue quite clean; appetite returning; bowels free; sleeps well; convalescent.

Such are the details of a few cases of the ordinary forms of erysipelas. It appears to me unnecessary to narrate the particulars of any more; but I may add, that the following observations are founded on the results of all the cases I have treated, which amount to seven cases of traumatic, and fifty-six of idiopathic erysipelas(*a*).

The predisposing cause of the disease seems to me to be a derangement of the liver and digestive organs, which gives

(*a*) Of these sixty-three cases the mean duration of the disease, after the commencement of treatment, was seven and a half days. Many cases recovered in three days, and the longest period was seventeen days; but this was in a case complicated with delirium tremens.

rise to a peculiar kind of fever or constitutional irritation; this irritation nature attempts to get rid of by the erysipelatous inflammation of the cuticular surface. If the constitutional irritation be not sufficient to cause this inflammation, great anger (as in Case II.), a blast of cold moist air, the application of any irritating substance to the skin, surgical operations, punctured wounds, ulcers, any abrasion of the surface, or other injury which in a healthy constitution would have either healed immediately or caused phlegmonous inflammation, will be sufficient to give rise to it. These appear to be the immediate causes of erysipelas. We find that this peculiar state of the constitution is most frequently met with in those addicted to drink malt and spirituous liquors, and lead intemperate lives; also in those who are sedentary and subject to great depression of mind. We find also, that the state of the air has the power of producing this peculiar kind of fever, for the affection is most frequent in autumn, or in seasons when hot weather is succeeded by cold and wet. Patients in hospital often suffer from this constitutional irritation, from breathing confined and bad air.

I have come to the above conclusion, that erysipelas is a peculiar kind of fever, or constitutional irritation, producing an inflammation of the skin, or skin and subjacent arcolar membrane, for the following reasons:

First. The disease, like small-pox, measles, &c., is subject to metastasis, as in Case VI.

Second. There is always the same train of symptoms preceding and attending each case.

Third. A very minute dose of tartar emetic, which would have comparatively no effect in other inflammations, generally causes severe vomiting and purging in this.

Fourth. In mild cases, the disease will wear itself out; the part where the eruption first appeared getting well, while the disease is spreading to sound parts; and this continues until the system is completely rid of the poison which caused this

peculiar fever. The patient then is in better health than for some time previously(*a*).

Fifth. It often recurs in the same patient at stated intervals; or if a patient who has had an attack lives irregularly, he is almost certain to suffer from a recurrence of the disease.

Sixth. That it is propagated by contagion will most probably be acknowledged, though I have myself seen but two instances; yet the observations of Lawrence, Copland, and others, appear to establish the point.

Erysipelas has been variously classified in all ages, but the following division appears to me to be the most natural and practical, viz.:—First, *Idiopathic Erysipelas*, that which arises spontaneously without any manifest cause; and second, *Traumatic Erysipelas*, or that which arises from some external or manifest cause, such as surgical operations, wounds, &c. Having propounded the opinion, that erysipelas is a poisoning of the blood caused by derangement of the chylopoietic viscera, and that nature excites a peculiar inflammation to get rid of the poisoning, I shall now attempt to prove that the plan of treatment which I have followed, and which is founded on that theory, is the most efficacious.

The treatment recommended in erysipelas has been as opposite as possible. Some practitioners advise it to be treated as a purely inflammatory disease, by venesection, local bleeding, purgatives, and low diet. For this plan high authority, both ancient and modern, can be brought forward. Others, taking a far different view of the disease, look on it as a species of putrid fever, and recommend tonics and stimulants, such as bark, ammonia, and wine, and object to all kinds of evacuations. Mr. Lawrence, who has written one of the most valuable treatises on the subject(*b*), is at the present day the most strenuous supporter of the antiphlogistic treatment. He thus

(*a*) There are cases of this kind recorded where the eruption passed over the entire body.

(*b*) Medico-Chirurgical Transactions, vol. xiv. p. 1.

speaks: "As erysipelas resembles other inflammations in its causes, symptoms, and effects, it should be treated on the same principles, that is, on the antiphlogistic plan. Venesection, local bleeding, purging, and low diet are the first measures, to which saline and diaphoretic medicines may be afterwards added." He then says the earlier these means are employed the better. Vigorous treatment in the beginning seems to him most calculated to shorten the attack and prevent the disease from spreading beyond its original seat. This treatment, Mr. Lawrence states, must be, like that of any other inflammation, modified according to the age, constitution, previous health and habits of the patient, and the period of the complaint. He likewise recommends, in that form of erysipelas which he calls phlegmonous, one or more long incisions to be made through the inflamed skin and the subjacent adipose and areolar textures, which are the seat of the disease, and these incisions to be made at the commencement of the attack. If this be not done, the inflammation, he says, will pursue its course, both in the areolar membrane and skin, in spite of bleeding, whether local or general; suppuration and sloughing rapidly supervene, and these destructive processes soon extend over a large portion of a limb. Medical practitioners, he states, are in general too anxious to begin the strengthening plan, which often causes relapses; he considers that ammonia is the best stimulant when there is doubt on the subject, bark next, and that wine should be given very sparingly. Mr. Lawrence has followed in the steps of Sydenham, who says: "I bleed from the arm at once; next day I give my usual mild cathartic; and at bed-time, in case the patient has passed too many motions, a paregoric draught, such as syrup of poppies. In the meanwhile the patient must live on barley-broth, oatmeal gruel, and roasted apples. He may take a little of the smallest beer, and leave his bed for a few hours daily. To this method the fever generally gives way in a short time; if not, I bleed a second and a third time."

Such are the opinions of two of the most strenuous supporters of the antiphlogistic plan of treatment. I shall next mention that of Dr. Fordyce, who is one of the strongest advocates of the stimulant plan. He says, "that he has always found bleeding and evacuations hurtful, and Peruvian bark the best remedy. It should be exhibited in substance, if the patient's stomach will bear it (and in this disease it always will) and in as great quantity as the patient will bear, which is commonly to the quantity of a drachm every hour." Dr. Fordyce is followed by Dr. Wells, and other practitioners, both foreign and English, who to the present day strongly advocate the tonic plan of treatment.

Having mentioned the antiphlogistic and tonic methods of treatment, I shall now allude more particularly to the third plan, that recommended by Desault. He says: "In the bilious erysipelas, whatever degree of fever and heat may exist, I give, in the first instance, a grain of tartar emetic dissolved in a considerable quantity of fluid. The symptoms generally diminish as soon as the effects of the medicine have ceased. I have seen them entirely subside, although the medicine produced no other sensible alteration in the animal economy than an increase in the secretions of the insensible perspiration and the urine. Sometimes the symptoms resist the evacuations, and we are obliged to have recourse once or twice, or even more frequently, to the use of the emetic drink."—"When the erysipelas is cured, and the bitterness in the mouth and fever have subsided, two or three purges of cassia and manna, with a grain of tartar emetic, are exhibited. During the treatment the patient is ordered to drink freely of a diluting ptisan acidulated with oxymel. As soon as the symptoms are mitigated, the diet of the patient is enlarged; for when it is too rigidly observed the acrimony of the humours is apt to be increased, and the bilious erysipelas to be reproduced, particularly in hospital, where the air, generally speaking, is unhealthy. I have invariably observed that the cases of persons

who had been bled previously to their admission into the hospital were more serious and obstinate, particularly when it had been frequently repeated. The same practice is not applicable to the phlegmonous erysipelas: in this kind emetics and other evacuants augment the irritation and tension already considerable, nor should they be had recourse to till the plethora and irritation of the patient are diminished by one or more bleedings, according to the urgency of the symptoms and the strength of the patient. The bilious erysipelas that then appears points out the necessity for evacuants, and the proper time for their exhibition."

I have now alluded to the different modes of treatment recommended both here and on the Continent. The first and second are diametrically opposed; and the last agrees with the first, with this exception, that in it is employed an agent which, in my opinion, may be called a specific. But Desault says we are not to bleed in the bilious erysipelas, but to depend on the tartar emetic; in the phlegmonous, on the contrary, we are to bleed even more than once if necessary, until we have reduced it to the bilious, and then we are to commence with the tartar emetic. Now, in my opinion—an opinion borne out by the results of the sixty-three cases of erysipelas which I have treated on the plan described in this paper —there is no form of the disease which should not be attacked from the first with tartar emetic, whether there be high inflammatory fever, as we have in Cases viii. ix., low typhoid fever, as we have in Case iii., vomiting, as in Case xii., or purging, as in Case iv.; and under all and every circumstance we shall find that the disease yields to this remedy. But I must be understood to say, that we are not to give this medicine in large doses, as recommended by Richter and other practitioners, who adopt his plan of treatment; for then it produces too violent an emetic effect, causing much general irritation, which being superadded to the irritation of the disease, the beneficial effect of the remedy is prevented: but I advise it to be given

in very small doses, as recommended by Desault, which may have to be repeated three or four times, so as not to allow the action of the medicine on the system to subside, for if it does we shall very likely find the disease to make more rapid progress after the first check, as occurred in Case xi.

Tartar emetic appears to me to act specifically in erysipelas for the following reasons, which depend on its sensible effects:—In most cases it vomits and purges after the second dose, as in Cases i., ii., iv., v., vi., vii., x.; or it vomits only, as in Cases viii., xi., xiii.; or it purges only, as in Case iii.: and what is vomited is green bile, and the same is passed by stool. I have known the second dose to cause from twelve to fourteen stools of bilious matter, with a decided remission of the symptoms. Now I have ordered this medicine in the same proportion in other diseases, as in phlegmonous inflammation, without the least perceptible effect on the patient; I have given it in bronchitis without any visible effect; and in other diseases I have administered it in the same proportion, and have found no such violent action as I have invariably seen even in the mildest cases of erysipelas.

If, from what I have now said of tartar emetic, it is to be expected to cure every case of erysipelas when administered alone, disappointment will ensue, as all that it seems to do is to remove from the system the morbid matter which appears to have caused the disease, and which nature was attempting to get rid of; as soon as that is done we must give the patient tonics, either wine or porter, strong broth, bitters, bark, ammonia, or quina: of all these I have found the sulphate of quina the most successful. It may be asked, at what time are the tonics to be given? The general rule I would lay down is, that as soon as we find the erysipelatous surface to be getting a yellow tinge, and the skin shrivelling a little, the tongue cleaning, and the pulse, which generally falls under the influence of the tartar emetic, becoming more frequent, the proper time has arrived to commence with tonics and omit the tartar

emetic. In some cases where we have not so marked an improvement in the symptoms, and we are afraid the strength is failing, we shall have to commence the tonics, while we are still continuing the tartar emetic, as happened in Cases I. and II. In other cases, where there are low typhoid symptoms, with prostration of strength, as in Case III., we shall have to give, with the tartar emetic, stimulants and tonics from the commencement.

While the patient is taking tartar emetic the bowels may be constipated, and we shall have to give some aperients: the saline aperients are what are generally recommended, but I usually order the compound rhubarb pill, with blue pill, in the proportion of three grains of the former to one of the latter, to be made into a pill; two of these to be taken for a dose, and, if necessary, to be repeated in six or eight hours. I prefer this combination, as it acts on the liver and large intestines.

I will next refer to the different local means that have been recommended in the treatment of erysipelas; first premising that I am opposed to any local application, except in idiopathic erysipelas, in which flour or powdered starch may be used, which I consent to more to gratify the patient than from any idea of their efficacy; and in traumatic erysipelas I recommend the part to be enveloped in a large linseed-meal cataplasm.

The first local treatment I shall mention is the abstraction of blood by the application of leeches; against this there is a great prejudice, as erysipelas often ensues from the bites. The second is that recommended by Mr. Hutchinson, viz., making from four to eighteen incisions of about an inch and a half in length, and from two to four inches apart, down to the fascia, with the intention of relieving the tension of the parts, of abstracting blood, and allowing the serum and other fluids to drain off. Mr. Lawrence has proposed a modification of this treatment: he makes one long incision, the entire length of the diseased surface. The objections to these plans are, that

in most, if not in all cases, they are unnecessary, unless when the case has gone into the third or suppurative stage, then incisions are required to give exit to the matter and sloughs; they cause the cure to be very tedious, and there is danger of a greater loss of blood than the patient can bear. The long incision recommended by Mr. Lawrence is that which is most generally approved of in this city; but, from my own experience, I am satisfied that the antimonial treatment, if adopted at an early stage, is quite adequate to obviate the necessity for any of these plans of local treatment, at least in the great majority of instances.

Dr. Fahnestock of Pittsburgh recommends the local application of creasote: "In every case of local erysipelas," says he, "we must apply the purest creasote, with a camel's-hair pencil, over the whole affected surface, extending some distance beyond the inflamed part; but at the same time we must administer a dose of calomel, followed by a sufficient quantity of jalap to insure free catharsis"(*a*). I have never seen this application used, and therefore cannot speak of its effects.

Another local application, and one which is strongly recommended by Professor Velpeau, is sulphate of iron, either in solution or ointment, the former in the proportion of an ounce of sulphate of iron to a pint of water, to be applied every second or third hour to the affected parts; the latter in the proportion of two drachms and a half of sulphate of iron to an ounce of prepared lard, to be applied every third hour. But he says, "Should the disorder appear to be produced by some internal cause, we must first direct our remedies against this; the sulphate of iron being only really efficacious when the inflammation is purely local." For my part I consider all cases of erysipelas to depend on some internal cause.

Nitrate of silver has been recommended, by Mr. Higginbottom of Nottingham, to be applied over the entire of the

(*a*) Provincial Medical and Surgical Journal, October 14, 1848.

inflamed surface. He says: "I have never in any case seen metastasis or any other bad effect from its use." He uses it in the following manner:—nitrate of silver, four scruples; nitric acid, six drops; distilled water, half an ounce: mix. This is to be applied several times on the inflamed parts, and for two or three inches beyond the inflamed on the healthy skin.

M. Piorry has recommended the use of linear blisters, by means of which he states that he has discovered a method of effecting the desired limitation of inflammatory action with great certainty. At the commencement of the disease he applies narrow blisters around the entire circumference of the inflamed skin, at the distance of one or two inches from its border. Nitrate of silver and solutions of sulphate of iron have been long used with the same view, but they have for the most part failed.

The only other application which I shall mention is mercurial ointment. This is to be smeared over the entire of the inflamed surface. It was first recommended by Ricord, and is still strongly advocated by some of our leading men.

The last is the only local application which, in my opinion, is worthy of consideration, as it acts not locally but constitutionally, for we know that in a very short time the system is affected by the mercury, and as soon as that takes place the erysipelas gradually declines. But with respect to the other local applications, I consider that they are injurious without constitutional treatment, and with it unnecessary. As, if my ideas are correct, viz., that the erysipelatous inflammation is the method taken to throw off the morbid state of the blood, anything that tends to check that eruption will be the means of preventing the efforts of nature, and probably cause a metastasis to some other part of the body, it may be to a more vital organ, for we have on record many cases of metastasis of erysipelas to the brain, larynx, and pericardium.

As a summary of these remarks I would draw the following conclusions:

First. That erysipelas is a constitutional disease, depending solely on a morbid state of the blood; and that the eruption and fever are the means nature takes to get rid of this poison.

Second. That, for all practical purposes, it is only necessary to divide the disease into idiopathic and traumatic.

Third. That tartar emetic seems to act specifically in erysipelas, by assisting nature in her efforts to throw off the disease.

Fourth. The best method of administering this medicine is by dissolving one grain in a quart of any bland fluid; the solution to be taken in the twenty-four hours.

Fifth. That as soon as the tartar emetic has acted sufficiently, sulphate of quina, or some other tonic, is to be administered.

Sixth. That if the patient is debilitated we must administer tonics at the same time that we give the tartar emetic.

Seventh. That under this treatment the erysipelatous inflammation may spread, but not with the same violence, nor to the same extent, as if the disease were left to itself.

Eighth. That we shall often require to give aperient medicine during the course of the case, as it is absolutely necessary to keep the bowels free.

Ninth. That local applications are unnecessary, and often injurious.

Tenth. That incisions are not necessary, except in the third, or suppurative stage; and if the antimonial treatment be early resorted to, it very rarely occurs that suppuration takes place.

Art. IV.—*On the Treatment of Traumatic Tetanus.* By H. R. De Ricci, Licentiate of the College of Surgeons of Ireland.

Of all the diseases to which suffering humanity is liable, none perhaps is more formidable than Tetanus; unerring in its

symptoms, steady in its progress, torturing in its effects, it rarely leaves its victims till it consigns them to the grave.

Known and studied from the remotest antiquity, it still continues to baffle the science and the ingenuity of man, and all the numerous therapeutic agents of both ancient and modern pharmacy, which from time to time have been brought in array against this fearful disorder, have almost invariably failed to effect the desired cure. In some rare instances it may have seemed to yield to a special treatment, but subsequent trials of the same plan have generally ensued in disappointment, and a specific for the cure of tetanus, if such exists, is yet a desideratum.

The want of success which, up to this time, has attended the treatment of this malady, has I, conceive, mainly arisen from its very obscure pathology, but partly also from the random manner in which the many remedies for it have been selected and administered. But now that its physiology has been so beautifully illustrated by Marshall Hall, in his discoveries regarding the reflex functions of the spinal cord, we cannot but hope that a plan of treatment, will be found, which, by being more rational in its principles, shall also be more successful in its effects.

Tetanus has been for ages classed into two divisions, the traumatic and the idiopathic. This last, though common in the West Indies and other inter-tropical climates, is almost unknown in this country, and as, when a case does present itself, it is generally by no means an unmanageable disease, I shall pass it over in silence, and proceed at once to speak of the traumatic species, to the consideration of which this paper is specially devoted.

Two forms of traumatic tetanus have been generally admitted by all practitioners, the acute and the chronic ; the former almost invariably fatal, the latter somewhat more amenable to treatment.

Acute cases of tetanus may be considered as those in which

the symptoms supervene before the tenth day after the receipt of the injury, and in which the spasms succeed each other at short intervals, and with great violence; and chronic, those in which the attack comes on at a later period, and in which the spasms are less violent and recur at more distant intervals. But on this all practitioners are not agreed, for many will not acknowledge as genuine tetanus those cases which have followed very quickly the receipt of the injury. I think it well, therefore, before proceeding any further, that we should stop for a moment, and consider what it is that constitutes real tetanus, and what are the diagnostic differences between it and other convulsive diseases, which will enable the careful and accurate practitioner to say, without hesitation, this is or this is not a case of tetanus.

Many affections are laid down in books as being likely to be mistaken for tetanus, and tetanus for them: among the principal we may enumerate hydrophobia, different forms of convulsions, hysteria, and muscular rheumatism of the back of the neck; but the only one which indeed might for a time lead astray, and which does in all its minutiæ imitate tetanus, is hysteria. This far-famed mimic of disease will put on *for a time* all the appearances of tetanus, and will deceive even the most accurate; but though it will assume even the most pathognomonic symptom, yet it will persist in it *only for a time*, and thus the practitioner will be enabled to correct his diagnosis. What then is the diagnostic symptom of genuine tetanus, which distinguishes it from all other diseases, and which, by being peculiar to it, must at once characterize as tetanus every spasmodic case in which it is prominent? In my opinion, *it is the unyielding rigidity of the affected muscles;* these, when once rigidified, so to say, by tetanic spasm, never relax, except in recovery or death. In hydrophobia there may be tetanic rigidity during the paroxysms, but in the intervals there are periods of rest, during which there is complete relaxation of all muscles. In hysteria the spastic condition of the muscles will

sometimes be continued for a very considerable time; but it ends at last by relaxing; and the same occurs in all those different forms of convulsive affections, which seem more or less to imitate tetanus.

Thus, then, the only disease in which this permanent rigidity of muscle is met with is tetanus; and in my mind we are justified in applying this name to all those spasmodic affections in which this symptom is prominently developed.

Having thus endeavoured to establish the symptoms by which this fearful disorder is to be recognised, I will proceed to examine it in its different stages, and then explain the principles of what I consider to be its rational treatment.

Tetanus seems to be a more frequent consequence of lacerated wounds and contusions of the extremities than of other injuries; but I have seen it arise from a very slight scratch of the nose; and many cases are on record where it occurred after trifling bruises, in which the skin had not been even wounded. Still it is a remarkable feature in this disease that it is certainly more frequent after slight than after extensive injuries, and that it generally bears an inverse ratio to the extent of the effect of an accident.

One of the first symptoms of approaching tetanus is a certain unpleasant rigidity in the back of the neck, which may be easily mistaken for rheumatism, together with a general malaise, accompanied with a sensation of weight and a tendency to yawn. The wound, when one exists, will also at times give indication of approaching mischief by the unhealthy aspect it assumes. These and other indications, coming on shortly after the receipt of an injury, should be carefully noted, as it is of the very greatest importance that the first symptoms should be recognised; for it is in this, its first stage, before the spinal cord has assumed that peculiar condition which induces the violent spasmodic action constituting confirmed tetanus, that our treatment will have the best chance of success.

The mode of treatment I shall venture to recommend, will

meet, I know, with absolute condemnation from the majority, and with approbation from few, if from any. Yet, as it is based upon sound physiological principles, it will, in my opinion, succeed, if tried sufficiently early. I do not mean by this to say that the plan I propose will cure every case of tetanus, no more than the most approved treatment can cure every case of pneumonia; but I believe that I shall thereby blot out tetanus from the list of those diseases over which the healing art has no control.

It would seem that a wound inflicted on the sentient extremities of the afferent nerves produces, in certain conditions of the body, such an exalted state of the excito-motory system, that the power of the will is insufficient to control this condition; hence, on the application of a stimulus, for example, the vibration of the bed from a heavy footstep in the room, or a mere attempt at deglutition, involuntary spasmodic motions will be produced, without the patient being in any way able to repress them.

It would also seem that lacerated wounds, contusions, and other injuries of the extremities of nerves, are more often the cause of tetanus, than the clean wounds inflicted by a sharp, cutting instrument; in proof of which we may refer to the rarity of the disease supervening after sabre cuts in battle, or after wounds inflicted by the surgeon in the operating theatre.

In many *post mortem* examinations of fatal cases of tetanus, a nerve has been found partially divided, or lacerated, or stretched across a broken bone; and we have cases on record (though few indeed) in which the division of the principal nerve leading to the part, or the amputation of the part itself, has at once put a stop to all spasm.

I therefore conclude from these facts, that, in the treatment of this disease, we are justified, with the view of removing the exciting cause, to amputate the entire part, or to divide the nerves leading to it. Having once removed the source of the evil, we shall find it less difficult to combat the disease;

but before we proceed to consider the treatment, it will be well to investigate what are the causes of the patient's sufferings, and what the causes of his death. The chief and most severe of all his sufferings is the constant recurrence of the spasms, which, in addition to the excruciating pain at the ensiform cartilage, are so harassing in themselves, that did the patient suffer from no other ailment, he should finally sink, worn out by these repeated attacks. We must, therefore, endeavour to check this disordered condition of the nervous system, both by equalizing the powers of the brain with those of the excito-motory apparatus, on the one hand, and rendering the muscles incapable of obeying the erratic dictates of the spinal cord, on the other. For in tetanus the energies of the brain are minus, whilst those of the spinal marrow are plus, and we must, therefore, exalt the powers of the encephalon, to enable it to preserve its normally relative position in reference to the excito-motory system: this we effect by the free administration of stimulants, such as wine, brandy, and especially the resin of Indian hemp, which possesses the property of exciting the brain independently of other parts of the human frame. And we obtain a passive condition of the muscles by means of tobacco enemata and fomentations, the relaxing and paralyzing effects of which are well known. The use of the latter powerful remedy might in unskilful hands be attended with danger, and its administration should therefore be solely intrusted to an intelligent and careful person, whose business it should be to watch narrowly its effects; but under certain restrictions it is admirably adapted to fulfil the purpose we require of it, as under its nauseating influence all the muscles gradually relax from their rigidity, and become unable to execute any automatic movement, or in any way to respond to the convulsive impulses of the spinal cord.

Our patient is now in a state of comparative ease; his brain is exalted in its energies, and thus enabled to counteract the spasmodic motions of the spinal cord; and, when it fails, the

paralysed condition of the muscles comes to its aid, by refusing to act in compliance with the impulse. The pain at the ensiform cartilage too is relieved, and the patient's forces are no longer exhausted by overpowering convulsions. When once the patient is brought to this condition, his safety is almost a matter of certainty: for what is the cause of death in tetanus? it is either exhaustion or asphyxia, and not any specific action or morbid poison inherent to the disease itself. Asphyxia is caused by the persistent rigidity of the respiratory muscles; exhaustion, by the repeated attacks of spasm. But, by the treatment I suggest, both these conditions are done away with, the sufferer is relieved from any immediate danger of impending death, and his nervous system has now time to correct the morbid functional condition into which it had lapsed, and by degrees will resume its normal functions.

In fine, my treatment resolves itself simply into copying the process of nature; and I believe that successful plans of treatment in every disease have been derived from copying this great teacher. Experience of centuries has shown us that cases of acute traumatic tetanus invariably die when left to themselves; and that cases of the chronic variety generally recover. Let us bring our patient from the former condition into that of the latter, and we shall have him in a position in which his own forces, and the resources of nature, will be sufficient to effect his recovery.

In proof of the practical value of the theory I have now propounded, I shall subjoin the particulars of two cases in which my mode of treatment was adopted in part, and in which it proved entirely successful.

Patrick Carroll, aged 25, stone-mason by trade, was admitted into the Parsonstown Infirmary on the 20th of July, 1841, with a lacerated wound of the great toe, caused by the fall of a large stone on it, which had nearly severed the first phalanx, injuring at the same time, though in a less degree, the second and third toes of the same foot. The accident occurred

at four o'clock, P. M., and the man was admitted into hospital almost immediately. He got a cathartic mixture, and a spirituous lotion was applied to the wound. At eight o'clock the same day (precisely four hours after the receipt of the injury), Dr. Waters was sent for to see the man, who, according to the nurse's report, had had several fits during the last half-hour. He at once recognised the so-called fits as tetanus, all signs of which were prominently marked. At this period the muscles of the neck, face, and abdomen were *permanently rigid;* and the spasms violent, and recurring at intervals of less than two minutes. He complained of soreness and stiffness about the throat, and difficulty of swallowing; he was bathed in perspiration, and greatly alarmed about himself. His pulse was 130, small, and the characteristic risus sardonicus was strongly marked. He was ordered tobacco fomentations over the abdomen, and a tobacco enema (fifteen grains of tobacco to eight ounces of boiling water) every half hour, so as to keep up a state of nausea, this to be thrown up with O'Beirne's tube.

20th July, 10 P. M., *six hours after the accident*, he was greatly prostrated, and complained of deadly sickness; he had vomited large quantities of a dark green fluid; the spasms were as violent as ever, and the muscles rather more rigid. Emprosthotonos strongly marked; pulse 100, very small. Ordered to continue the fomentations and enemata, the frequency of the latter to be regulated by the effect, so that a constant nausea should be kept up. A liniment of croton oil and turpentine was also ordered to be rubbed along the spine, until a free eruption was produced.

21st, 10 o'clock A. M., *eighteen hours after the accident;* during the night he has had twelve enemata, and the fomentations have been continued uninterruptedly; thus the nausea has been maintained. As his bowels had not been freed, he was ordered two drops of croton oil.

21st, 8 o'clock, P. M., *twenty-eight hours after the accident;* spasms less violent, and the interval between them in-

creased to five minutes. The patient is now for the first time inclined to sleep, but is prevented by the recurrence of the spasms; he swallows with difficulty; pulse 100, very small. Nausea continues under the incessant administration of the tobacco enemata and fomentations; he, however, expresses himself as being better. His bowels not having been acted on, he was ordered three drops of croton oil, to be taken at once.

22nd, 10 o'clock, A. M., *forty-two hours after the accident.* The patient is considerably better; spasms are much less violent, and the interval between them is increased to ten minutes. The muscles are still very rigid, but he complains less of difficulty in deglutition. Bowels well acted on.

22nd, 9 o'clock, P. M., *fifty-three hours after the accident.* I was disagreeably surprised at finding the patient much worse, the spasms had considerably increased in violence, and the interval was again reduced to five minutes. He has great anxiety, no inclination to sleep, great difficulty in swallowing, intense rigidity of abdominal muscles; pulse 130, very small. He was ordered the croton oil and turpentine liniment again to the spine, and the tobacco fomentations and enemata to be continued incessantly.

23rd, 10 o'clock, A. M., *sixty-six hours after the accident.* I found him much better this morning, the rigidity of the muscles considerably diminished, spasms less violent, and the interval increased to ten minutes; deglutition less difficult; pulse 100; bowels well freed.

23rd, 9 o'clock, P. M., *seventy-seven hours after the accident.* Continues better; spasms less violent; rigidity of muscles is diminishing; easier deglutition; pulse improved; bowels free. Ordered a tobacco enema every third hour only.

24th, 10 o'clock, A. M., *ninety hours after the accident.* Much better this morning; he has slept well during the night; swallows well; rigidity of abdominal muscles almost disappeared, and he declares himself quite well. All medicines were now

suspended, and he rapidly recovered. During the course of his illness he got plenty of wine, brandy, and beef-tea. The wound constantly presented a healthy appearance.

In the foregoing case, which was one of the most acute on record, death was averted by means of tobacco and stimulants; I do not say cured, as I consider that was effected by nature. He had, however, a very narrow escape on the recurrence, or rather the exacerbation of the symptoms fifty hours after the accident; and I am firmly convinced that he would not have run that risk, had his lacerated toes been removed on his admission into hospital. He recovered, however, perfectly, and lived till last summer, when he fell a victim to the cholera.

For the notes of the following case, I am indebted to the kindness of Mr. B. B. Cooper, of Guy's Hospital, London.

William Marshall, aged eleven years, was admitted into Guy's, under Mr. Cooper, with an extensive injury of the left leg, caused by the wheel of a baggage train which had crushed it up against some brick-work. On examination the whole of the lower third of the thigh on the inner side was stripped of integuments, and a considerable portion of the saphena vein was exposed. The posterior tibial artery and accompanying veins were torn across, and the posterior tibial nerve was laid bare for about three inches of its course. There was also an extensive lacerated wound of the inner side of the foot, with fracture of the scaphoid and metatarsal bones of the great toe. When admitted he was in a collapsed state, body cold, and pulse 100, very feeble. Ordered some carbonate of ammonia.

A consultation having been held, it was determined to allow the limb to remain; the artery was therefore tied both above and below, and the soft parts were brought together with adhesive plaster.

Second day. He was recovered from the shock; pulse 130, feeble. He was ordered ten grains of calomel and colocynth pill, to be followed by a senna draught, and the saline mixture every fourth hour.

Third day. Wound presented a sloughy appearance. Patient drowsy and complaining but little of pain; bowels open; pulse 126, feeble.

Fifth day. He was dreaming much last night, and has become very restless and irritable; skin dry; pulse 130, feeble. Ordered decoction of bark, with carbonate of ammonia; an opiate at night; porter; four ounces of wine, two eggs, and arrow-root.

Seventh day. He still continues irritable and restless, and there is not the slightest reparative action in the wound.

Twelfth day. Is exactly in the same state, except that his bowels having become irritable, he was ordered chalk mixture.

Thirteenth day. Bowels less irritable. The injured limb is drawn up by spasm, and there are twitchings of the facial muscles. Patient is very restless; pulse 130; skin dry and hard.

Fourteenth day, 8 o'clock, A. M. There are now decided tetanic spasms. The angles of the mouth are retracted, and there is general rigidity of the muscles. The mouth can be opened with difficulty, but he can be fed as usual. His respiration is hurried, and he is extremely restless and irritable. 11 o'clock, A. M.—Tetanic symptoms are increased in severity; the mouth cannot be sufficiently opened for the admission of food. The general rigidity of the muscles is increasing. 4 o'clock, P. M.—Mr. B. B. Cooper removed the limb, by the circular operation, below the knee.

Fifteenth day. All tetanic symptoms have disappeared; the face has re-assumed its natural appearance; the mouth can be freely opened, and he is much less irritable; pulse 124; skin warm and moist.

Sixteenth day. Has passed a good night; pulse 120, firm.

Eighteenth day. Does not feel as well as yesterday; there is a slight redness of the left knee, and the right foot is swollen and tender. Ordered calomel and opium pills every hour.

Twenty-first day. The swelling has extended up the right leg, and involves the stump also; the scrotum and abdomen are also œdematous.

Twenty-fourth day. Is getting daily worse; pulse 130, feeble.

Twenty-eighth day. He became gradually worse, and died at 5 o'clock, P. M.

A *post mortem* examination, nineteen hours after death, revealed extensive deposits of pus in the left knee, in the right shoulder-joint, and in the substance of the lungs. The external and internal iliac veins of the right side were in a sloughy state, as was also the entire of the mucous membrane from the tongue to the stomach.

This case, though it ended fatally, is extremely instructive, as the tetanic condition was at once removed by the amputation of the part which was the exciting cause of the malady. His dying of diffuse inflammation, twenty-seven days after the receipt of the injury, cannot in any manner do away with the fact that the patient recovered from the tetanic attack; no more than the death of Carroll last year, by cholera, can in any manner weaken the fact of his recovery from acute tetanus in 1841.

These are, therefore, the conclusions I come to, with regard to the treatment of this disease:—to endeavour, if possible, to combat it at its outset, and commence by removing the existing cause, either by excision, amputation, or division of the nerve leading to the part; to give stimulants, such as brandy, wine, and the tincture of the resin of Indian hemp, in doses of from ten to twenty drops every half hour, so as to produce a slight degree of cerebral excitement; to support the patient at the same time by giving beef-tea and eggs; to pay attention to the state of the bowels, and act upon them with croton oil or any other powerful purgative, as in this disease, as is well known, they are extremely torpid and sluggish; and to bring him under the influence of tobacco as rapidly as possible. These

are the principal means upon which we have to rely; but, at the same time, I must not omit to warn every practitioner against the use of opium, belladonna, and every other narcotic, which it has been the fashion to administer indiscriminately in every case of tetanus, both in hospital and in private practice, not so much with the view of curing the patient as of stupifying his intellect, so as to render his exit from this world less painful.

And now, before I conclude, let me add a few words concerning those individuals who, in consequence of some idiosyncrasy, cannot be subjected to the continued influence of tobacco without incurring extreme danger. Those possessing such an idiosyncrasy are easily distinguished, as a few minutes after the administration of the first dose symptoms of the most alarming nature will arise: the countenance will assume a deadly hue and a ghastly appearance, and the pulse at the wrist will become quivering and intermittent. I need scarcely say that in such a case the administration of tobacco should be at once stopped, ammonia applied to the patient's nostrils, cold water sprinkled on his face, and every means used for the excitement of cardiac action.

In these cases, after having discarded the use of tobacco, the main reliance is to be placed in vapour baths, which should be applied without removing the patient from his bed, and continued for a considerable time. The patient will invariably express himself as much relieved by them, and they generally diminish the rigidity of the muscles in a very considerable degree, at the same time that they sooth the patient and allay the spasms.

By adopting such a method of treatment as I have endeavoured to describe, we shall not, as I said before, cure *every* case of acute traumatic tetanus, but we shall certainly give the unfortunate sufferers a much better chance of recovery than by abandoning them to the old routine treatment of calomel, opium, and belladonna.

Art. V.—*Observations on "Imputed Poisoning."* By G. Hugh Kidd, M. D., F. R. C. S. I.; Lecturer on Anatomy in the Dublin School of Medicine, Peter-street; Assistant Physician to the Coombe Lying-in Hospital.

In a case which occurred in the County of Armagh, in the month of January last, the question of imputed poisoning was raised.

The circumstances, as reported in the public papers, are briefly these:—Mr. Bleazby, a gentleman of independent fortune, died, after an illness of short duration, on the 16th of October, 1849. After his death rumours arose that he had been poisoned; an inquest was called for; the body was raised on the 15th of December, 1849, and the stomach, liver, and kidneys were removed for examination. The body presented appearances which caused a suspicion that a stomach-pump had been introduced after death; and at the inquest a defence was attempted on the ground that the person had died from natural causes, and that poison had been maliciously injected into the stomach afterwards.

The principal medical witness was examined with reference to this, and his evidence, as reported in the Armagh Guardian newspaper, of February 4, 1850, is as follows:—"On 3rd January last, received two sealed jars containing, No. 1, a human stomach, and a portion of the small intestine; No. 2, a large portion of a liver and a kidney. The stomach was empty; one of the ligatures which had been attached to the orifices did not embrace the whole of the stomach, so that the contents might have escaped; on opening the stomach, which was found to be in a good state of preservation, the mucous membrane was found to be in a vascular condition, and softened in texture,—appearances which are generally met with in cases of poisoning with irritating substances.

"On scraping the membrane a very small tea-spoonful of

thick grumous matter was obtained, which, on being analyzed, was found to contain arsenic. About one-half the substance of the stomach was taken, after the removal of the mucous matter, and on analysis was found to contain arsenic. And deponent likewise succeeded in obtaining unequivocal evidence of the presence of arsenic in the kidney."

After describing the mode of analysis, which was by Reinsch's process, the report continues:

"From the appearance of arsenic in the stomach, kidney, and liver, deponent has no hesitation in stating, that, in his opinion, the death of the individual from whose body these parts were extracted was caused by arsenic.

"As a matter of opinion, the arsenic must have been received into the stomach before death. It is possible to inject arsenic into the stomach after death; but in that case it could not enter the liver or kidneys; it is only by absorption that it could reach these organs, and absorption ceases immediately after death."

At the inquest this opinion, so decidedly expressed, had great influence, and a verdict of murder was returned against the accused persons.

On reading the reports of the case, it struck me that this opinion was at variance with the established truths of physiology, and I instituted the following experiments to test its accuracy.

Experiment 1.—Having placed a cat under the influence of chloroform, I bled it to death, on 27th February, 1850. Twenty-four hours afterwards I opened the abdomen to expose the viscera, and then passed a tube down the œsophagus, and injected four ounces of Fowler's solution of arsenic into the stomach, some of which I passed on into the small intestines, and, having closed the wound, hung up the animal in the horizontal position. On the 29th of March, I re-opened the abdomen, and found the mesentery, where it was in contact with the intestine containing the arsenic, presenting several

yellow spots, which, on examination, proved to be produced by arsenic, and seemed analogous to the spots mentioned by Christison as having been observed in the human subject. The substance of the psoas muscles presented similar yellow stains. The liver, when examined by Marsh's process, yielded arsenic in large quantities.

Experiment 2.—Having obtained a rabbit on 29th March, I kept it without food till the following day, and then killed it by striking it on the neck. On the 1st of April I opened the abdomen, and, having passed a tube from the mouth, injected eight ounces of a solution of arsenic, ten grains to the ounce, into the stomach; then, closing the wound and having tied a ligature tightly round the neck, I hung up the body by the hind legs.

On the 23rd of April I removed the liver, kidneys, heart, lungs, and brain for examination, after which the body was buried till the 27th of May, when I had it raised; I then removed the fore legs and muscles of the back.

The liver, kidneys, and heart gave unequivocal evidence of the presence of arsenic, and that in large quantity; the lungs were not examined; the brain did not contain any arsenic; from the muscles of the fore legs numerous spots of metallic arsenic were obtained; and the muscles of the back yielded it in still larger quantities. The stomach, which was quite empty when the animal was killed, contained a large quantity of dark green pultaceous matter; on removing this the mucous membrane was of a dark colour, as if stained by it; and in one place the mucous and muscular coats were completely removed, the peritoneal alone remaining perfect.

The presence of the arsenic in the heart and legs in this case removes the objection which might arise from the abdomen having been opened; a proceeding which I considered necessary, as in one animal a laceration of the stomach had occurred which obliged me to give up the experiment.

The several analyses were performed by Dr. Maxwell

Simpson, Lecturer on Chemistry in the Original School of Medicine, Peter-street, who kindly undertook them for me, and executed them with much care, adopting Marsh's process as the most accurate; having previously tested the materials used to prove their purity. The quantity of arsenic obtained in each instance was too great to admit of any doubt as to the source from which it came.

When the theory of absorption is attentively considered, it will be found that this process depends entirely on the physical properties of membrane, properties which it possesses in common with many inorganic substances.

"Until recently," says Müller, "the passage of matters into the blood was supposed to depend on a peculiar absorbing power of the veins. But it is now known that fluids may find their way into the blood of the capillaries, without the aid of this imaginary power of absorption; and from the capillaries they necessarily pass, first into the veins, the direction in which all the blood of the capillaries moves being from the arteries towards the veins and heart"(*a*).

Permeation of the tissues, under which term he includes endosmosis, he considers to be the primary phenomenon in this process, which, as it is exercised by dead animal tissues, as well as by living, he distinguishes from lymphatic absorption; a distinction, however, which is perhaps unnecessary, for even in the absorption of chyle from the intestinal canal, after the nutritious matters have been selected by a process of cell growth, and conveyed into the interior of the villi, they have to permeate the coats of the lacteals, which commence by closed extremities. Magendie says that, "beyond a doubt, all the blood-vessels, arterial and venous, dead or living, great or small, present in their parietes a mechanical property adequate to render a perfect explanation of the principal phenomena of absorption." This he calls "imbibition"(*b*). The fact

(*a*) Müller's Physiology, by Baly, second edition, vol. i. p. 259.

(*b*) Magendie's Physiology, by Milligan, second edition, p. 357.

that the contents of the gall-bladder pass through its coats, and colour the surrounding parts, is well known; and it is our every day experience in the dissecting-room, that when the blood-vessels have been filled with Sir William Burnett's preservative fluid, it passes out of them in a few hours, thus permitting them to be filled with the usual injection.

The experiments that I have now detailed show that fluids may permeate the tissues much more extensively than Müller or Magendie have stated. This may take place by two distinct processes,—endosmosis, and simple permeation of the tissues, the latter analogous to that by which fluids pass through filtering paper.

By the first of these, endosmosis, when two miscible fluids having different properties are separated from one another by a porous diaphragm, such as marble, caoutchouc, bladder, or membrane of any description, animal or vegetable, the fluids will become thoroughly mixed: thus, suppose we fill a bladder with milk, and place it in a vessel of water, a current of water will pass through the bladder into the milk—"endosmosis," and a current of milk will pass out of the bladder to the water—"exosmosis," until the two fluids are so well mixed as to have acquired equal densities. The inward current may be greater than the outward, or *vice versâ*, depending on the nature of the fluids, and of the membrane separating them, and causing an increase in the volume of one fluid and decrease in the other. In the case of the milk, if the bladder be filled and well tied, it will soon burst, so powerful is the inward current.

This is the endosmosis of Dutrochet, so far as it is necessary for our present purpose to explain it; and it is obvious that the stomach, filled with fluid, and surrounded by vessels and organs containing a dissimilar fluid, serum or blood, is properly circumstanced for carrying it on.

If the second process, or the simple permeation of the tissues, the imbibition of Magendie, exist along with the first,

the effects of the permeation are masked by the endosmosis, until the two fluids are mixed, when the decrease of volume produced by the permeation becomes very evident, the endosmosis having ceased.

These principles may be illustrated by the following experiments:

1st. Having constructed two endosmometers by cutting the bottoms out of two phials of equal diameters, tying them over with bladder, and fitting graduated tubes, by means of cork, to their necks, I filled No. 1 with Fowler's solution of arsenic, and immersed it in a basin containing serum, and No. 2 with serum, and placed it in Fowler's solution. The specific gravity of the serum was 1031; that of the solution of arsenic, 1030.

The following registries mark the increase and decrease of volume in the two instruments. The apparatus was set to work at $10\frac{1}{2}$ o'clock, P. M. The first registries indicate the height of the fluid in the tubes at this time:

No. 1. FOWLER'S SOLUTION IN ENDOSMOMETER.	Inches.
1st day, $10\frac{1}{2}$, P. M.	$5\frac{5}{10}$
Do. 12, P. M.	$7\frac{2}{10}$
2nd day, 8, A. M.	$10\frac{3}{10}$
Do. 2, P. M.	$10\frac{7}{10}$
Do. $7\frac{1}{2}$, P. M.	$10\frac{7}{10}$
Do. 11, P. M.	$10\frac{3}{10}$
3rd day, 9, A. M.	$9\frac{4}{10}$
Do. 12, P. M.	$7\frac{7}{10}$
4th day, 7, A. M.	$6\frac{8}{10}$
Do. 1, P. M.	6
5th day, 8, A. M.	$3\frac{7}{10}$
Do. 11, P. M.	$2\frac{5}{10}$
6th day, 10, A. M.	$1\frac{9}{10}$

No. 2. SERUM IN ENDOSMOMETER.	Inches.
1st day, $10\frac{1}{2}$, P. M.	5
Do. 12, P. M.	$3\frac{9}{10}$
2nd day, 8, A. M.	$3\frac{1}{10}$
Do. 2, P. M.	$3\frac{1}{10}$
Do. $7\frac{1}{2}$, P. M.	$3\frac{1}{10}$
Do. 11, P. M.	$3\frac{1}{10}$
3rd day, 9, A. M.	$3\frac{4}{10}$
Do. 12, P. M.	$3\frac{6}{10}$
4th day, 7, A. M.	$3\frac{7}{10}$
Do. 1, P. M.	$3\frac{8}{10}$
5th day, 8, A. M.	$3\frac{8}{10}$
Do. 11, P. M.	$3\frac{8}{10}$
6th day, 10, A. M.	$3\frac{6}{10}$
Do. 11, P. M.	$3\frac{4}{10}$
7th day, 9, A. M.	$3\frac{1}{10}$

The results of this experiment are remarkable, in that the greater current is from the heavier to the lighter fluid, contrary to what is usually observed. When alcohol and water are separated by bladder, the greater current is from the heavier to the lighter fluid. To ascertain if the small quantity of tincture of lavender in Fowler's solution, or the potash, which has also been supposed to interfere, influenced the result of the experiment, I varied it by using a saturated solution of arsenic in distilled water, and a solution—ten grains to the ounce—in liquor potassæ, using endosmometers constructed with a portion of fresh human stomach, and filling them with blood kept fluid with nitrate of potash, in the proportion of half a drachm to eight ounces. The results were similar,—the clear solutions becoming red, and the blood, on examination, proving to be strongly impregnated with arsenic.

It will be observed that in the instrument, No. 1, the fluid reached its maximum height at 2 o'clock, P. M., of the second day; it then remained stationary for some time, after which it gradually fell in the tube. That was because the fluids had become mixed, and permeation was becoming evident.

The simple permeation of the tissues, by fluids, may be rendered evident by Dutrochet's experiment of putting a fluid into an endosmometer, and immersing the membrane in a similar fluid, so as to keep its surface moistened.

Experiment 2.—Into an endosmometer constructed with human stomach I put some Fowler's solution, and immersed it in a basin containing a similar solution. At the commencement of the experiment the fluid stood in the tube at two and a quarter inches, in one hour it had fallen to three-eighths of an inch.

This is analogous to filtration, and is due to the hydrostatic pressure. That it may take place along with the endosmosis is evident from the registries of the tube No. 2, in the first experiment.

In this case the exosmotic current was greater than the en-

dosmotic; but in addition to the exosmotic current, a portion of the serum seems to have passed through by its own gravity; consequently we find the fluid again rising in the tube, until thorough mixture is accomplished, when permeation again becomes evident and the fluid sinks.

The circulation, by renewing the fluids around the stomach, will, of course, modify the results in a living animal; but in a dead animal we may suppose that, when a solution of arsenic is injected into the stomach, endosmosis is established, the volume of fluid in the stomach is increased, and the surrounding parts become impregnated with the solution. After some time endosmosis ceases, and the fluid permeates into the surrounding parts by its own gravity. The stomach of the rabbit had no fluid in it when opened, though eight ounces had been injected into it; the heart contained more arsenic than the kidneys, as the animal had been suspended by its hind legs; and were it not for the ligature which was tied tightly round the neck, and the manner in which the animal was killed, we might have found arsenic in the brain, as it was in the fore legs.

Writers on medical jurisprudence have dwelt not at all, or very briefly, on the subject of imputed poisoning, at least on this form of the crime. Taylor, in his work on medical jurisprudence, does not allude to it; but in his more recently published work, "On Poisons," the following passage occurs incidentally, at page 360: "The detection of arsenic in the tissues, makes it clear that the poison must have been introduced during life, and that it has most probably caused death; its detection merely in the *contents* of the stomach or intestines does not give this absolute proof."

Christison, in his Treatise on Poisons, says that he has never met with a well authenticated case of such ingenious atrocity; but that it must be admitted to be quite possible; "and it may be necessary to determine by an accurate account of the symptoms, or by the morbid appearances, or by both together,

the disease in the interim having gradually advanced to its present stage. He is a married man, and has healthy children. About four years back he had gonorrhœa, but he never had any venereal sore, excoriation, or bubo. His health is good, and he is free from any additional ailment.

When the man presented himself to me in the month of August, he stated that his tongue was his sole complaint, that he felt it full and too large for his mouth, that its motions were painful and stiff, and its several functions impaired. He is obliged to use fluid or soft nutriment, and to avoid anything stimulating. He is much annoyed with the profuse secretion of saliva, and has occasional lancinating severe pains in the ears, and along the back of the neck, darting towards the temples. He has no disagreeable discharge from the mouth, and is free from much pain if he avoids any local irritation. On questioning him closely as to the mode in which this disease commenced, he stated that he first felt a tumour in the tongue near its centre, about the size of a small marble; that a blister formed on its surface; that it ultimately ulcerated, and that a succession of these were superadded. The aspect of the disease was very formidable; the organ was generally hypertrophied, its central portion occupied by a deep ulcerated cleft, extending about an inch and a half in its longitudinal axis, and this cleft more than half an inch in depth, and branching off into irregular fissures on either side. The edges of the ulcerations were rugged and hard, and the surface of a dirty white colour. The intervening portions of the tongue were of a fiery red hue, extremely tender to the touch, and almost devoid of any appearance of papillæ; on compressing the tongue between the fingers, isolated tumours of various sizes, from that of a pea to that of a horse-bean, could be distinctly felt; and both on its upper and under surfaces the epithelium in the site of these tumours was abraded where ulceration did not exist. There was no evidence of any other lesion in the neighbourhood. The aspect of the man is as healthy as could be expected from the description of food to which he

was necessarily limited, and he found himself fully equal to his work.

The local treatment used was the occasional application of nitrate of copper, alternately with oxymel æruginis; and the constitutional remedies employed were blue pill, hemlock, and iodine, in combination with potash and preparations of iron. The improvement in the ulcer, from the application of the nitrate of copper, was rapid, and that before any effect could be calculated on from the other remedies. The cure, at one period apparently effectual, has since been retarded by returns of ulceration at irregular points of the cicatrices, but these were immediately checked by the nitrate of copper, and, I have no doubt, will ultimately yield to a persistence in the constitutional treatment suited to cases of the kind.

Case III.—This case was under the care of Dr. M'Cready, and its progress noted by him; I took the following memorandum of it whilst under treatment.

P. G., aged 22, unmarried, a teacher in one of the National Schools, applied in March, 1850, with a disease of the tongue, which rendered his articulation so thick and so indistinct as to cause him to dread the loss of his situation. To particularize his prominent symptoms would be in reality little more than a recapitulation of those noted in the last case. The disease commenced about two months previously, in the shape of small kernels, as he termed them, in the substance of the tongue. These became identified with the mucous membrane, which was abraded over some, and ulcerated over others, and they subsequently assumed their present character; the portion of the tongue in their interstices becoming swollen and painful. He had always enjoyed excellent health, and his general appearance was indicative of it. He had never been exposed to venereal, and was free from any other local or general complaint. The only discernible lesion was that in the tongue. The left half of the tongue is hypertrophied, so as to project beyond the apex on that side; about its centre, approaching the median line, is a deep ulcerated cleft, with

irregular edges, a foul surface, of a dirty whitish colour, with the sides firm and solid. The substance of the tongue around is full and swollen, and of a bluish pink colour. Its whole aspect is that of a formidable and painful disease, yet the latter character was comparatively absent. On compressing the tongue, small, solid, and fixed tumours were to be felt deeply imbedded in it; and on looking more accurately at both the dorsum and under surface, the epithelium could be seen abraded in one spot, the mucous membrane ulcerated in another, and in a third a small ulcerated slit, through which a probe entered and made its appearance in the cleft at the top. Each of these spots, when pressed on, gave the sensation of a hard pea, and they were similar in all respects to those mentioned above. I touched the ulcerated spots with nitrate of copper, directed in the intervals a borax wash, and put the man on iodide of iron and hemlock. This occurred on the 25th of March. I did not see him again until the 13th of April, when I find the following memorandum in my note-book:—"Improvement most striking and most rapid. Nitrate of copper acted almost magically, and from merely one application; the benefit of the iodide of iron and hemlock most marked; he has taken of each about one drachm. The tubercles which were in progress have diminished in size and in consistence; and the seats of ulceration have in part absolutely healed, leaving their cicatrices smooth and the adjoining structure of the tongue much softened and less irregular." On the 11th of May I find it noted, that the progress of the case was equally favourable, and all ostensible marks of the disease removed, under the same general remedies, with little variation as to dose; but, as in all the cases I have seen, it is curious enough that just at this stage there is a disposition to partial relapse.

I have selected the above cases as being good illustrations of this tubercular affection of the tongue. It is by no means a common form of disease; yet a year seldom passes during which one or more cases will not be met with in extensive dispensary or hospital practice. In private practice it is still

more rare. It would appear to me to be a form of lupoid disease attacking the tongue. It is as insidious in its onset; it commences not unlike it, in the form of an adventitious deposit; its progress is equally protracted, and its cure deceptive; and it also bears a very striking resemblance to it in its comparatively painless character, when we consider its formidable-looking appearance, and in the perfect listlessness and apathy with which it is borne. I may add, moreover, that the similarity is not lessened by reflection on the treatment suited to both. Children and adults are most commonly the subjects of this affection, the former by no means as rarely as we might be disposed to think; and I have seen the disease in them in its most aggravated form, although the subjects of it have all the ordinary features of good bodily health, in the common acceptation of the term; yet there is often present some indication of the strumous diathesis. The symptoms are so fully described in the cases I have now narrated, that it is unnecessary to enter into further details. From them it is evident that the tongue may be partially or wholly engaged, that the adventitious deposits may be single or otherwise, and that in several stages they will assume peculiar characters. The disease is not malignant; it is curable, but often very slowly so, and the more especially when ulceration has been established. In the latter instance, the appearance of the organ when healed is very characteristic; smooth, cicatrized sulci, totally devoid of even the semblance of papillæ, occupy the seats of the former ulceration, and are permanent there, dividing its surface into so many deep furrows of different shapes.

This affection may be confounded with syphilitic or cancerous disease, and hence the surgeon should be on his guard. Its diagnosis from the former may be occasionally attended with some difficulty, especially in its more advanced or ulcerating stage; but, even admitting that the syphilitic affection should be a solitary symptom, which is rare, I think that attention to the rules laid down by writers must enable the surgeon to come to a proper decision. His mistake, if he err, will,

however, be remedied by subsequent results, and the agents used are comparatively innocent, and are likely to be beneficial, in most instances, to both diseases. Not so as regards cancer; here his diagnosis is all-important, and requires the greatest circumspection. Respecting it, however, I am satisfied there can be no difficulty, if the main outlines of the affection to which I have alluded are borne in mind, especially its almost painless character and slow progress, and the trifling inroad it makes on the surrounding textures or on the constitution, even after a very prolonged duration.

The treatment which I have found most successful is that specified in the above cases; and the combination of iodide of iron with hemlock appears to be the best. In obstinate forms of the disease, some of the milder preparations of mercury may be requisite; but in all, the means employed must be continued for a lengthened period. I have tried many local applications, and amongst others, the acid nitrate of mercury, but I have found none equal to the nitrate of copper. It is most invaluable as an application to this class of ulcer; and I may remark, that it will be found equally so in many of those small excavated ulcers of a semi-phagedenic character, which occur on the genital organs both of the male and female. It is a very deliquescent salt, and can be applied only in the liquid state. The surface of the ulcer should be well dried before it is applied, and afterwards covered with oil; and it should be borne in mind, as regards the tongue, that the superficial appearance of the ulcerated surface is often most deceptive, as the disease burrows very deeply. The best mode of fixing the tongue, for the purpose of applying the caustic, is by means of the fingers and thumb, a portion of lint, linen, or a towel being interposed, so that it cannot slip; and the best instrument for the application is a small piece of cedar, as prepared for paint-brushes, the ends of which may be be covered with lint or French wadding, one end being dipped in the nitrate of copper, the other in the oil, whereby no delay or confusion can ensue.

Art. VII.—*On a peculiar Form of Gonorrhœa.* By W. Colles, F. R. C. S. I., Surgeon to Steevens' Hospital, &c.

There are few diseases occurring so frequently in medical practice, the treatment of which has undergone so little modification, while the result of that treatment has been so uncertain and variable, as gonorrhœa. Thus we meet with two patients whose symptoms are apparently similar; we subject both to the same routine of practice, and the result will be, that one will be cured in the space of two or three weeks, while the other will continue to labour under the disease for months, if not for years.

It has been the habit of the surgeon to consider the disease to be the same in both cases, and to attribute the different results of his treatment to some peculiarity of constitution, which either will not tolerate the remedies proposed, or resists their effects. I think, however, that if we examine the subject more closely, we shall find that there may be various affections or morbid dispositions in the several organs concerned in the disease or in the neighbouring parts, which, added to the original inflammation of the urethra, will contribute to keep up the discharge, and which must be removed before the patient can be perfectly cured. I had proposed alluding to such of these affections as I have found most frequently complicating the disease, and to the treatment required for each, before the gonorrhœa can be cured; but from the limited space that can be allotted to this communication in the present Number of the Journal, I find that I must postpone doing so until a future opportunity. I shall, therefore, confine myself now to the consideration of one which I have frequently found co-existing with and conducing to the severity of the original disease, rendering it much more intractable in its nature and progress, requiring a modification in its treatment, and one which has not yet attracted the attention from surgeons that its importance and frequency would seem to merit.

Gonorrhœa was considered by Mr. Hunter to be a peculiar inflammation of the lining membrane of the urethra, which never extended beyond the first two inches of the canal, and this he named its specific distance; he seems to have come to this conclusion from observing that the patient always referred the pain to this one part. Subsequently to him, surgeons seem to have adopted this opinion, without much consideration, for it will be found on inquiry, that there is scarcely a disease of the urinary organs, however remote, in which the patient will not fix on this spot as the seat of pain: I need only refer to calculus of the bladder as a striking example.

Contrary to this received opinion, I have no doubt that this peculiar inflammation, with secretion of pus from the lining membrane of the urethra, may commence at the orifice, spread along the entire of the canal, and very often attack the lining membrane of the bladder itself, and at times extend, I suspect, even to the ureters and kidneys: while thus progressing, a very slight cause might direct it towards the testicles, constituting the disease termed hernia humoralis. That such is the fact as regards the bladder is evidenced both from the general symptoms and from the appearance of pus in the urine. The symptoms are, I believe, never so severe as in that form of disease called catarrh of the bladder, when a thick ropy mucus is secreted in great quantity; they are at times so slight as scarcely to attract the patient's attention, who will merely consider that with him the symptoms are more severe than usual. I have seen this attack of the bladder ushered in with a severe rigor; and on close inquiry we may find that the patient labours under a slight degree of feverishness or uneasiness coming on or increasing towards evening; and that he will complain of a dull heavy pain across the pubis, extending round to the sacrum and anus, and at times even to the region of the kidneys. The calls to pass water will be somewhat more frequent than usual, and when they do occur they are irresistible, attended with considerable pain and forcing, which continue for some time after the last drops have passed away, and which

are referred chiefly to the neck of the bladder, and extend from thence to the perineum and anus. The urine, when passed, at times appears clear and natural; in general, however, we can observe a slight cloudiness through it, and on allowing it to settle in a glass vessel, we shall perceive, after one or two hours, a copious yellowish or cream-coloured deposit, consisting entirely of pus. If we take a drop of this urine immediately after it has been passed, before any alteration can occur in it, and place it under a microscope, it will be found to be loaded with pus globules. In some instances in this affection, a number of yellowish, shreddy particles will be seen floating through the urine, which at times alarm the patient, causing him to suppose he is labouring under seminal weakness: on examination, these particles will be found composed of clusters of pus-globules and epithelial scales adhering together.

That the pus thus equally diffused through the urine has its source from the bladder, cannot, I think, admit of a doubt. It cannot be from the urethra alone, for I believe that there is a peculiar action of this canal on its contents, which tends to drive them forwards, and resists any retrograde movement. Besides, the urethra alone could not pour out the quantity of pus we meet with in some of these cases.

My friend, Dr. Fleming, at my request examined the urine with the microscope in some of these cases, and the result of his observations is contained in the following extract from a letter I received from him on the subject:

"As regards your views respecting those inveterate cases of gonorrhœa, which are so annoying to the patient and so puzzling to the surgeon, no second opinion can be entertained but that the lining membrane of the bladder furnishes a portion of the purulent fluid, and, as you remark, at a much earlier period than at a first view would be suspected. To test the direct passage of the pus from the bladder, I have made the following experiments, both on the male and female. In the latter it is often most important to do so. I introduced a catheter, allowed the first ounce or so of fluid to escape, so as to get

rid of the urethral discharge, then collected some of the urine in a clean glass, examined it forthwith with the microscope, and found pus globules. I have applied the same test in equivocal cases of hematuria, and found equally satisfactory results as regards blood globules."

In the case which first drew my attention to this subject, the patient a few days after infection had a severe rigor, with considerable pain and irritation of all the urinary organs, attended with a copious deposit of pus, exceeding eight or ten ounces in the twenty-four hours. He soon began to waste, became emaciated, and even symptoms denoting hectic set in; and it was only by great attention he ultimately recovered. I at first feared that an abscess must have burst into the bladder; but his previous good health, and the absence of any symptoms indicative of a collection of matter, soon removed this impression. Since then, having suspected that this purulent state of the urine was at times both a consequence and a cause of the continuance of the disease, I have sought for its presence in several cases of gonorrhœa, and have met it much oftener than I had any reason to suspect; though I cannot form any conclusion as to the comparative frequency of its occurrence. I have observed the urine thus loaded with pus in two or three days after the commencement of the gonorrhœa, and afterwards keep pace with the original disease. I have also in two or three cases known the discharge from the urethra to continue, and pus to be found in variable quantities in the urine, for the space of nearly two years after the original infection.

I have no specific remedy to offer for the removal of this affection; in its treatment we must rely on, and be guided by, the general principles of surgery. And first, as to the value of that plan of treatment, called by the French *abortive*, I have no means of forming an opinion. I doubt not but that the injection of strong stimulants, as nitrate of silver or corrosive sublimate, may at times prevent the extension of the inflammation; yet, if they fail at first, they cannot but materially aggravate the subsequent stages of this disease. When the pus

has once appeared in the urine, we must follow the antiphlogistic plan more strictly than is generally done; low diet and rest being strictly enjoined, and purgatives, diluents, and such remedies as tend to lessen the inflammatory condition of the blood being exhibited: when the inflammatory symptoms have subsided, and not till then, should we resort to those remedies considered as specifics,—the balsams, or cubebs. Of these I think the former have more influence over this form of the disease, and do not add so much to the irritation, as the latter.

Should these means fail, it is customary to resort to the various tonics, astringents, acids, alkalies, oils, preparations of iron, &c. I must, however, confess, I have been often surprised to find what little influence medicine of any sort has had over this secretion of pus from the bladder. Each seemed for a time to benefit, yet no single remedy appears to possess any specific control over this disease. Should general remedies fail, and the case become chronic, surgeons resort to injections; but in this form of disease they must prove ineffectual. However, I would consider it a very justifiable proceeding, and one which I believe has often succeeded, to apply the remedies to the entire diseased surface; to inject, not only the urethra, but also the bladder itself with any of those numerous applications which are used in diseases in many respects similar, such as weak solutions of sulphate of zinc, of nitrate of silver, or even of balsams.

I have been induced to offer these crude and imperfect observations on this one form, or rather complication, of gonorrhœa, because it has not met the attention it merits; and I trust, by having called the notice of the profession to it, a body of facts and observations may be collected, which will speedily enable us to arrive at a more perfect knowledge of its diagnosis and treatment.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Bulletin Général de Thérapeutique, Médicale, et Chirurgicale. Tomes xxxiv.-xxxviii. Paris, 1848–50.

Journal des Connaissances Médicales pratiques, et de Pharmacologie, January to May. Paris, 1850.

Journal des Connaissances Médico-Chirurgicales, January to May. Paris, 1850.

Jahresbericht über die Fortschritte der gesammten Medecin in allen Ländern in Jahre 1848. Herausgegeben von Dr. Canstatt und Dr. Eisenmann. Erlangen, 1849. Royal 8vo. Verlag von Ferdinand Enke.

Annual Report of the Progress of General Medicine in all Countries during the Year 1848. Edited by Drs. Canstatt and Eisenmann. Erlangen (Bavaria), 1849. 7 vols. Royal 8vo. F. Enke.

In the following review we purpose to embody some of the more remarkable of the contributions to surgery in which the continental journals have been extremely fertile during the last two or three years. Did our space permit, this selection might have been extended to much greater length; but in confining ourselves to those which have appeared to be most deserving of attention from their practical value, we have necessarily been called upon to exclude many which could not have failed to attract the notice of the scientific surgical observer. As will be seen, the duties of the reviewer have been, in a measure, superseded by those of the compiler and the translator, though we have, in virtue of our critical capacity, in no few instances dissented from the opinions of the authors, whenever their ob-

servations have not harmonised with the doctrines of the Irish school of surgery. We have dwelt at length on some ingenious instrumental improvements, which, though belonging, almost all, to the department of minor surgery, we cannot but consider as valuable additions to our list of surgical apparatus. We also beg to call the special attention of our readers to what may be looked upon as a new feature in medical journalism, namely, the illustration of several of the subjects we have chosen, by woodcuts from the blocks which were originally engraved for the journal from which we have taken them. This we have been enabled to accomplish by the kindness of Dr. Debout, editor of the Bulletin Général de Thérapeutique, with whom an exchange has been effected of the wood engravings of that journal and our own.

An important addition has been made to practical surgery in the introduction, by M. Nélaton, of a new, simple, and efficacious process for the reduction of dislocation of the lower jaw. The general pathology and treatment of this injury have at all times commanded the attention of surgical writers; and though conflicting opinions have been maintained as to the difficulties to be overcome, and the obstacles to reduction, one common principle has been followed in the several manœuvres adopted to restore the condyle to its normal position in the glenoid cavity. The views of M. Nélaton, however, will be found to possess originality, both as regards the obstacle to reduction, and the means of effecting it. According to the theory generally adopted in the present day, and sanctioned by J. L. Petit, Boyer, Astley Cooper, and others, when luxation of the inferior maxilla is once produced, the condyle of this bone, thrown in front of the transverse root of the zygoma, is maintained in this position, in the opinion of some, by muscular contraction, and in that of others by the resistance offered to the return of the condyle by the elevation of the transverse root. The first dissentient from this so generally received opinion appears to have been M. Malgaigne, who, in his Traité d'Anatomie Chirurgicale, expresses his doubts as to the correctness of this explanation, without, however, any attempt to substitute another. This distinguished surgeon, while endeavouring to luxate the lower jaw on the dead subject, was surprised to find with what facility the condyles could be made to pass in front of the transverse root of the zygoma, without rupture of either ligaments or muscles. Being next induced to examine the extent of motion of the condyle during depression of the lower jaw, he states that he has observed the condyle pass naturally in front

of the transverse root of the zygoma, leaving behind it a very considerable portion of the masseter muscle, which in no way prevented it from returning into its cavity; and finally, that in pressing the articular surfaces, one against the other, in closing the jaws, we feel very distinctly the *leap* which the maxillary condyle is obliged to make in order to repass the eminence of the zygomatic root. The following passage, however, shows that, beyond a certain amount of scepticism as to the truth of the generally received doctrine, M. Malgaigne's views did not lead him to any positive conclusions. He says:

" Voici une chose curieuse, une position normale que tous les chirurgiens de notre époque regardent comme une luxation, et chacun peut sur soi-meme, reproduire a l'instant cette luxation prétendue avec ses symptômes classiques, sauf la douleur et la nécessité de la reduction."

At this precise point M. Nélaton has taken up the investigation, considering the observations of M. Malgaigne as well founded and deserving of attention. Admitting in effect the displacement to be such as authors suppose it, he demands, " What is the obstacle which prevents the return of the condyle into the glenoid cavity?" In the opinion of this author, the elevation of the transverse root of the zygoma is not very pronounced; and he says that, even were it more considerable, it is easy to understand that it could not oppose an obstacle to the reduction; everything, in effect, in the articulation, ligaments, capsule, and muscles being so disposed as to admit of the easy passage of the condyle under this apophysis, the osseous eminences of this joint not being at all comparable to those which are found in other situations. In combating the doctrine of muscular contraction as a cause of the difficulty of reduction, as maintained by J. L. Petit, the arguments of M. Nélaton are similar to those advanced by Boyer, who says: " Pour que les muscles, qui, a l'etát normal, élèvent la mâchoire pussent changer de rôle quand celle-ci est luxée, et d'élèvateurs devenir abaisseurs, il faudrait que, dans le mouvement forcé d'abaissement de la mâchoire, les branches de cet os pussent croiser la ligne moyenne de direction des muscles ptérigoïdien interne et masséter; il faudrait que les condyles fussent portés en avant, au point d'atteindre et même de dépasser la ligne dont il s'agit: mais un déplacement aussi étendu n'a jamais lieu; il suppose entre les mâchoires un degré d'écartement que l'on ne recontre presque jamais en pareil cas"(*a*).

According, then, to M. Nelaton, the obstacle to reduction

(*a*) Boyer, Ouvrages Chirurgicales.

existing neither in the resistance offered to the condyle by the eminence of the transverse apophysis, nor in muscular action, it must be sought for, not in the articulation itself, but in neighbouring parts.

"In front of the tempero-maxillary articulation," says M. Nélaton, "we find the tempero-zygomatic fossa, in which the coronoid process is lodged when the mouth is closed. Before and behind this excavation are placed two eminences, the posterior formed by the transverse root of the zygoma, the anterior by the articulation of the superior maxillary with the malar bone. At the inferior part of the suture which results from the union of these two bones, there exists a tubercle sufficiently prominent, limited within by a notch formed by the smooth edge of the malar process of the superior maxillary bone, and often on the outer side by a little, elongated, almost oval fossette. This eminence, to which we may give the name of malar tubercle, is situated at about the distance of a centimetre(*a*) from the coronoid process. In place of this tubercle we have sometimes met a plane surface, and even in certain subjects a notch more or less deep; but the presence of the tubercle is the rule. With regard to the coronoid process this latter presents great differences; very short in some, and elevated scarcely to the level of the condyle, it is found very much elongated in others; sometimes directed upwards, at other times obliquely outwards, so that its summit tends to meet the zygomatic arch; in some instances directed forwards, and distant from the condyle; in others directed backwards, so as to approach it." "These facts well established," continues M. Nélaton, "let us examine the pathological condition. Having, as I have said, undertaken some experiments on the dead body, with a view to verify the prevailing doctrine on luxations of the lower jaw, I have ascertained:—First, as M. Malgaigne observes, that if the condyle of the lower jaw is carried forwards without passing the point which the cavity of the capsule permits it to reach, the displacement disappears forcibly as soon as we approximate the dental arches, the eminence of the transverse apophysis presenting no obstacle to the return of the condyle. Second, that if the anterior part of the capsule be cut or torn, so that the condyle can

(*a*) In the following pages the French measurements are, for the most part, retained; their simplicity and facility of application cannot be too much admired. The following scale will assist those unacquainted with the system of decimal measurements:

The metre	equals	39·37100 inches	English, or a little less than 3 ft. 3½ in.
centimetre	=	·39371 „	a little more than $\frac{1}{3}$ of an inch.
millimetre	=	·039371 „	a little more than $\frac{1}{30}$ of an inch.

pass out of it and advance a few millimetres, we remark that the displacement is permanent, not, as is generally believed, because of the elevation of the transverse root, nor by reason of the contraction or tension of the muscles, but because the summit of the coronoid process comes to butt (*arc-bouter*) against the inferior and anterior angle of the malar bone, and is lodged in the little fossette which we have said exists often at this point. The contact of the summit of the coronoid process with the malar bone appears to us, then, to constitute an indispensable condition in the true dislocation; and for this the displacement need not be extreme; it suffices that the condyle be advanced from three to four millimetres. The external lateral ligament remains intact, the capsule alone is torn at its anterior part, and the inter-articular cartilage either accompanies the condyle in its displacement, or remains beneath the transverse root, according as the rupture is either above or below its anterior edge. . . . . It results from what precedes that it is not on the condyle that we must fix attention to find the cause which renders the dislocation permanent, but on the coronoid process and the malar bone, since it is in the contact of these two bones that almost all the difficulty of reduction resides."

While we cannot but acknowledge ourselves convinced by the arguments of M. Nélaton as to the all-important part which the newly acquired relations of the coronoid process and the malar bone play in reference to the difficulty of reduction of this dislocation, we must be permitted to say that both muscular action and the elevation of the transverse root of the zygoma form elements which cannot be altogether disregarded in the consideration of the question.

However slight the eminence of the transverse root, once the dislocation has occurred, the superior surface of the condyle of the jaw becomes situated on a plane higher than the articular surface which it has just quitted; and the obstacle to its gliding back over a surface which, though smooth, is not a plane, is still further increased if we suppose the capsule torn and the head of the condyle protruded below the anterior edge of the inter-articular cartilage while the latter retains its position with regard to the transverse root of the zygoma. In reference to the effects of muscular action it is by no means necessary to suppose that the elevators become depressors, which is the opinion so ably combated by Boyer. It is evident, as remarked by J. L. Petit, that the contraction of the elevating muscles has a constant tendency to press the condyles against the base of the cranium, and to separate them from their articular cavities; the latter effect being favoured by the new direction which the vertical ramus of the jaw has assumed, its posterior edge being

now directed from above and before downwards and backwards, completely decussating with its former direction. Again, the lower maxilla may be considered as having acquired a new fulcrum at the point where the coronoid process hitches on the malar bone, thus increasing the leverage of the masseters and internal pterygoids; though, of course, the action of the hyoidean depressors tends to antagonize the elevators. Muscular action, then, as well as the prominence of the transverse root of the zygoma, we consider to offer a certain amount of resistance to the reduction of the dislocation, though we gladly accord to M. Nélaton a full meed of praise for having pointed out by far the most important obstacle. The assertion of MM. Malgaigne and Nélaton resolve themselves respectively into the two following, viz.:—1st. In the depression of the lower jaw the maxillary condyle passes in front of the transverse root of the zygoma, without a luxation being produced. 2nd. In this luxation the obstacle to reduction arises from the fact of the coronoid process being supported on the malar bone. And though we entertain no doubt that each of these authors is entitled to the merit of originality, the erudite research of M. Beaugrand(*a*) has established that nearly similar opinions have been advanced by former surgeons, who, however, failed completely to discover the practical deductions to be gained from them. Bichat appears to have been well aware that in depression of the lower jaw the condyle passes with a sudden movement, capable of being felt by the hand, under the transverse root; and Fabricius ab Aquapendente has observed, "when the lower jaw is luxated its coronoid process escapes from under the malar bone, and cannot return upwards;" while the following passage, occurring in the works of Delpech, the celebrated Professor of the School of Montpellier, shows that he fully recognised the position assumed by the coronoid process: "On peut toucher par la face interne de la joue l'apophyse coronoïde et s'assurer *qu'elle appuie sous l'eminence malaire et que c'est ce point d'appui qui fixe les mâchoires au degré d'ecartement ou elles se trouvent*"(*b*). Professor Smith also remarks that "the coronoid process forms, below the malar bone, a prominence which is very visible externally, but which is most distinctly felt through the mouth"(*c*).

(*a*) See this writer's able Examen des nouvelles Recherches sur la Luxation de la Mâchoire inferieure: Journal des Connaissances Médicales, 6e numero, Mars, 1850; and 7e numero, Avril; a source to which we beg to acknowledge our obligation for a most succinct account of M. Nélaton's researches.

(*b*) Precis elémentaire des maladies rèputées Chirurgicales, t. iii. p. 61. Paris, 1816.

(*c*) Smith on Fractures and Dislocations, p. 286. Dublin, 1847.

In effecting reduction, however, all the efforts of M. Delpech were directed towards overcoming the contact of the condyles of the jaw with the transverse root of the zygoma. The merit, then, of drawing inferences of practical value from this observation rests indisputably with M. Nélaton, who had already advanced, in his Elements of Pathology, an opinion as to the possibility of effecting reduction by pushing the coronoid processes directly backwards by means of the thumbs placed either in the mouth, or externally immediately below the malar bone. While engaged in examining the exact position of the coronoid process, and its relation to the malar bone, before he could complete his examination, the jaw was found to escape from his fingers, and to restore itself of its own accord. The following case presents a remarkable contrast between the method of reduction generally adopted, and that of M. Nélaton:

"A woman luxated both condyles of the lower jaw, whilst yawning, about 11 o'clock in the evening. M. Beaugrand, summoned on the instant, had made many attempts at reduction without success. Two other surgeons, having been called in, tried several methods, and finally, at 2 o'clock at night, the patient, being wearied out, was left with the luxation unreduced. On the next day the efforts at reduction were renewed, but equally without success, and on the day following (thirty-six hours after the accident) M. Nélaton was summoned. On his arrival, the patient was suffering much, the cheeks and mouth being swollen and œdematous from the pressure exercised in the attempts at reduction; and even the mucous membrane of the mouth was excoriated. The mouth was open, the dental arches separated only to the extent of a centimetre; the lower incisor teeth on a plane anterior to the upper. There

was an invincible obstacle to approaching the jaws; but it was possible to open the mouth further, and the separation of the incisor teeth could be carried as far as two centimetres."

The depression in front of the meatus auditorius was well marked, as seen in the accompanying figure. M. Nélaton proceeded to examine the patient; the index finger of the right hand was introduced into the mouth, and placed on the anterior edge of the coronoid process, so that the palmar aspect of the finger, in following it up, came to the summit of the coronoid, which was then manifestly found resting in front of the malar bone. "All these points established," says M. Nélaton, "I proceeded to the reduction, for which I ordered the patient to open the mouth as much as possible, and whilst she executed this movement, I placed my two thumbs on the coronoid processes, and without even embracing the jaw, without taking any other point of support, a simple pressure in a backward direction caused the condyles to return suddenly into their cavities; the reduction was complete, and all the symptoms disappeared. What theory had made me only presume was surpassed by reality, and the new process was found not only equal but superior to the old, even when put in execution by skilful surgeons." Two other cases of successful application of this process are recorded by M. Nélaton. In one, reduction had been unsuccessfully attempted by pushing the coronoid process upwards and backwards, thus approximating more closely this process to the malar bone. The patient was brought to M. Nélaton, who, placing himself behind, took with his thumbs a point of support on the nape of the neck, and, commanding the patient to open his mouth, exerted a slight pressure upon the coronoid processes, by means of the fingers placed externally: a slight noise was heard, and the condyles resumed their places, the countenance of the patient recovering its normal configuration, and the mouth its functions. It is but right to add, that M. Chevalier, intern of the hospital of St. Louis, and M. Vassor, who had seen M. Nélaton operate, failed in the application of his process, though they took the precaution of causing the patient to open his mouth; reduction was finally effected in this case by the ordinary method.

To succeed, according to the process of M. Nélaton, it is necessary to act either by the interior of the mouth, taking a point of support behind the mastoid processes, or externally, by the operator taking a position behind the patient, and making pressure on the coronoid process, pushing it downwards and backwards, to disengage it from contact with the

malar bone, at the same time that the patient opens the mouth. In ordinary cases, a light pressure is sufficient; but if more force be requisite, M. Nélaton advises the head to be supported by an assistant, or a band to be passed around it, in which the operator can engage his index and middle fingers, while the thumb must be brought to bear on the coronoid process. The accompanying figure exhibits a simple and efficacious method of employing a handkerchief to give a sufficient fulcrum.

The method of reduction which we have now described has been before the profession for more than a year. We have seen the success which has attended its use in the author's hands; and when we reflect on the great difficulties frequently presented to the surgeon in attempting to restore the lower jaw to the glenoid cavity, we cannot but feel that M. Nélaton will have conferred a signal benefit on humanity should the rigid test of experience prove that his anticipations of the facility of reduction by the method he has devised are as well founded as we are confident his views of the pathology of this luxation are correct. We shall anxiously await the verdict of the clinical surgeons of Dublin on the subject.

M. Nélaton has made an interesting and practical contribution to the pathology of congenital affections(*a*), in which he has given a detailed description of a congenital luxation of the humerus. The symptoms were well marked, the right arm, the shoulder, and the corresponding half of the thorax being imperfectly developed, so that the extremity differed perceptibly, both in length and size, from the other. The right

(*a*) Canstatt's Jahresbericht, Leistungen in der Mechanischen Krankeiten Von Hecker, reported from La Gazette des Hôpitaux.

(luxated) arm was three and a half inches less in circumference than the left, but the atrophy was confined to the upper arm, the fore-arm possessing its normal length and volume. The arm and fore-arm hung vertically by the side. The shoulder was deformed, the deltoid much flattened, and in the infra-spinous fossa there existed a deep excavation. The head of the humerus could be plainly felt under the coracoid process, and behind it the posterior border of the glenoid cavity could be easily defined. It was moveable in all directions, and the shoulder, also, had completely preserved its motions. It could be depressed, raised, moved forwards and backwards, but the arm could not be abducted.

The hand and the finger possessed their normal mobility in this case. There was manifestly paralysis of the deltoid, supra- and infra-spinati, the biceps, coraco-brachialis. and brachiæus anticus muscles, while those of the shoulder, the great pectoral, latissimus dorsi, and all the muscles of the fore-arm and hand, enjoyed their usual power. The case presents points that differ much from those described by Professor Smith(*a*), in which the amount of motion was much more limited. In M. Nélaton's case, the fore-arm and hand were well developed, and enjoyed free motion. Cruveilhier, as is well known, does not consider these cases as examples of congenital luxation, but as the result of paralysis of the deltoid; an opinion which we have combated in our notice of his recent work on pathology(*b*).

Vrignonneau has reported a case of dislocation of the fifth cervical vertebra, in which his efforts at reduction were crowned with success. It occurred in a man thirty-three years of age, who fell from a cherry-tree on his head, becoming immediately senseless, and remaining so for an hour and a half, after which he complained of intense pain in the vertex and neck. The head was bent forwards, and the entire body motionless. After a time, paralysis of the extremities, the sphincters, and the bladder came on. On the second day, death by suffocation appeared imminent, yet reduction was attempted in the following manner:—The patient's shoulders were fixed by assistants, and traction made on the head by the operator. In proportion as the parts were extended, the voice became stronger, and the breathing freer; as soon as extension appeared to have been carried to a sufficient degree, the head and the upper cervical vertebra were directed backwards, when the under surface of the fifth slipped on the upper surface of the sixth cervical vertebra with a perceptible noise. The unpleasant symptoms

(*a*) *Op. cit.*, p. 260, *et seq.* (*b*) Vol. ix. p. 176.

immediately disappeared, the man was soon able to resume his occupations, and experienced only some stiffness and impediment in the lateral movements of his neck(*a*).

Many other important contributions to the pathology of luxations have been made within the last few years, which want of space prevents us from noticing at present. In Canstatt's Jaresbericht for 1848, Erlangen, 1849, will be found an excellent retrospect of the labours in this department, a source from which we have freely borrowed, and to which we refer such of our readers as may be anxious for further information on these subjects.

M. Seutin has published, in the Journal des Connaissances Médico-Chirurgicales, a series of observations on the treatment of fractures by what he terms the method *amovo-inamovible*, in which he has described, at considerable length, a series of apparatus destined for the treatment of all descriptions of fractures. In principle it consists of the application, on an extensive scale, of starch bandages. Numerous figures are given representing the apparatus as modified for each limb, and each variety of fracture. We cannot do more at present than refer our readers to the original papers(*b*).

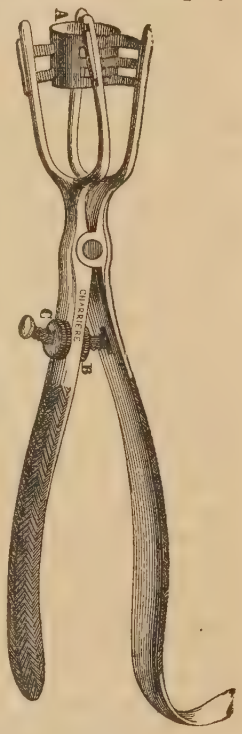
The multiplication of surgical instruments, unless when dictated by a sense of their absolute necessity, we have always considered as more likely to impede than to advance the progress of our science. In the department of *minor surgery*, however, many imperfections undoubtedly exist, both in the apparatus employed and also in the method of applying them. While, therefore, we think that the skilful surgeon should be prepared in difficult circumstances to turn such instruments as he may possess to as many uses as possible, we are not disposed to receive unfavourably any assistance which may be offered us by mechanical ingenuity or skill; and we consequently proceed to notice a few improvements effected by our continental brethren.

The accompanying figure represents an instrument devised by M. Luër for the reduction of dislocations of the thumb. It has been successfully employed by M. Blandin. That originally invented by M. Luër has undergone some modification and improvement in the hands of M. Charriere, whose name is so well known in connexion with the manufacture of surgi-

(*a*) Canstatt's Jahresbericht, Leistungen in den Mechanischen Krankeiten Von Hecker, quoted from the Journal des Connaissances Médico-Chirurgicales.

(*b*) Journal des Connaissances Médico-Chirurgicales, Numeros d' Octobre, Novembre, Decembre, 1849, January, 1850, *et seq.*

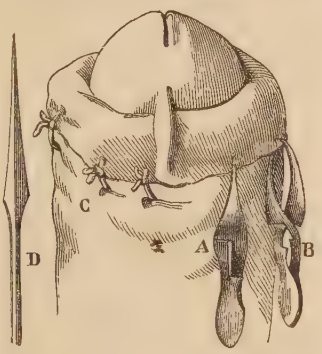
cal apparatus. The modified instrument of M. Charriere consists, as shown by the woodcut, of a forceps, the blades of which, instead of being simply enlarged, are bifurcated. The parallel arms resulting from this bifurcation of each blade are furnished with straps of leather, A, interlacing in two-thirds of their extent, and thus forming a double knot, which is opened by the separation of the blades which form the handle. The action and power of this double knot can be limited and maintained by two screws, B, C, in such a manner that, without employing much force, a sufficiently great pressure can be exerted, which, at will, may be increased, diminished, or kept fixed. This forceps, the application of which is obvious, may be employed indifferently for all the fingers, and, indeed, on a larger scale, might be capable of more general application. With some slight modification of the handles, and the addition of rings, or other means of attaching the cords of a system of pulleys, it would be of great service in the reduction of dislocations of the limbs. The original instrument of M. Luër, though used with success by M. Blandin in the first case, completely failed in the next. It is, however, but just to add that the ordinary means of reduction had also been ineffectual, though aided by subcutaneous section of the lateral ligaments, and the attachments of the muscles of the thenar eminence. It is only, then, in recent cases that we may expect success from the employment of the instrument, which, it will be at once confessed, presents many advantages over the ordinary means, especially the rude though ingenious application of the door-key, or the well-known clove hitch(*a*).



At various periods in the history of surgery, attempts have been made to obtain the union of wounds by other means than the employment of adhesive plasters and sutures; different forms of clasps have been suggested and applied; but this

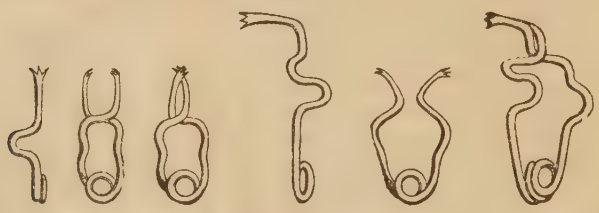
(*a*) Bulletin général de Thérapeutique, tome xxxiv., 11e Liv., 15 Juin, 1848, p. 500.

method had completely fallen into oblivion until M. Vidal (de Cassis), the well-known surgeon of the hospital du Midi, had again brought it under the notice of the profession, by the invention of a new instrument, which he has applied in practice with successful results. Having been in the habit of uniting by interrupted suture the wound which results from the operation of phymosis, he at first thought it necessary to allow the threads to remain until the fourth day; but was subsequently induced to remove them on the third; and finally, having withdrawn them after twenty-four hours, he found that the wound had not the less completely united. The question then occurred to him, whether, for so short a period, sutures could not be altogether dispensed with, and the lips of the wound kept in apposition by means of a mechanical spring, which should not perforate the integuments. Having searched unsuccessfully the *arsenal* of M. Charriere, which did contain some instruments of this kind, but not suitable to the purpose, M. Vidal got M. Charriere to make for him the small forceps of continuous pressure, represented in the adjoining woodcut. The letter A shows the forceps seen sideways, and B the same instrument applied so as to preserve in contact the mucous membrane and the skin, after the operation for phymosis.



In this little forceps, from the manner in which the blades cross each other, the points are constantly kept in apposition, until a slight pressure is made at the part where both are united. M. Vidal has proposed the name of "serres-fines" for these little instruments, which in his opinion are destined completely to supplant the ligature and the use of adhesive plaster. The number of them to be employed in any particular case will depend on the extent of the wound. "It may be necessary," says M. Vidal, "to apply as many as sixteen." The period for which this application is to be continued, does not, in the opinion of this surgeon, exceed twenty-four hours; and he states that the re-union is accomplished as completely after eight as after twenty-four hours. They can be removed with facility, it being always remembered, that they open or close by a mechanism exactly the opposite to that of the ordinary for-

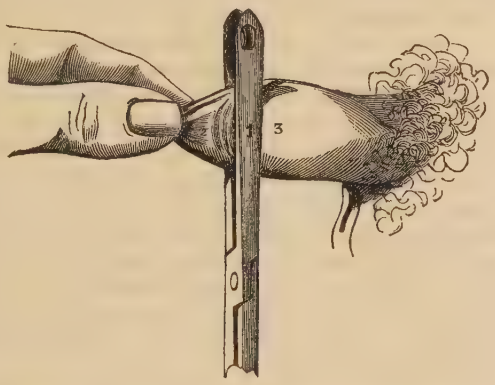
ceps. In their removal they present many advantages over the suture, occasioning neither pain, bleeding, nor traction. Their employment is not limited to wounds of the prepuce. The inventor has himself used them for the union of a wound of the temporal region. M. Danyau gives a successful case of their employment in rupture of the perineum, of twelve hours' standing, in which union was accomplished in sixty-five hours. Their application has been proposed by Vidal, in the case of varices, with the view of arresting the current of blood, without injury to the integument or the vein itself. In a subsequent communication to the Bulletin de Thérapeutique the author has proposed a modification of his *serres-fines*, by which greater simplicity, and, what is more important, lightness, are combined. They are formed of silver wire, of the



strength of an ordinary pin, and are easily made: the above figures exhibit several varieties of them.

MM. Chassaignac and Vidal (de Cassis) are respectively the authors of an operation for phymosis by the method of circumcision. That of M. Chassaignac consists of the introduction into the cavity of the prepuce of a blunt forceps, or any other dilating instrument with two branches, which in opening form the letter V. When the tension and flattening out of the prepuce are once accomplished, M. Chassaignac implants three needles in the base of the cutaneous triangle, which are passed through only the half of their length. They are then given to an assistant to hold, and the forceps are withdrawn. A fine strong thread is now taken, and a circular ligature made in front of the needles, which strangulates all the part of the prepuce that had been dilated. The scissors, carried perpendicularly in the furrow made by the ligature, divides at one cut integument and mucous membrane, after which the needles are passed quite through, with their threads, the loops which they form between the opposite edges of the prepuce are divided, and twice as many separate ligatures as there were originally needles are thus obtained. The remainder of the operation consists in bringing the mucous membrane and the skin accurately into apposition at the edges

of the wound, by means of the ligatures. The reviewer in the Bulletin de Thérapeutique claims for M. Vidal (de Cassis) the merit of having employed this process three years before it was proposed by M. Chassaignac. M. Vidal appears, however, to have since adopted another process, of which the accompanying wood-cut gives a representation. It consists in tracing with ink on the prepuce a line indicating the point where the section is about to be made, then grasping the prepuce with a dressing forceps, or a forceps of continuous pressure, in front of this line, the operator draws the prepuce a little forward, and having passed three needles with waxed thread through it at the line traced by the ink, divides at one cut the mucous membrane and skin. The following practical observations of this distinguished surgeon, in reference to the operation of phymosis, deserve attention:



"I have been hitherto in the habit of reuniting the mucous membrane and integument immediately after the section. But I have observed, after these instantaneous unions, ecchymoses of the sheath of the penis, thrombus of the base of the prepuce, infiltrations, and sanguineous collections, which prevented the immediate healing of the parts. I have, therefore, in regard to this operation, determined to follow the precept of Dupuytren, who allowed a certain time to elapse between the operation and the dressing. I perform the section at the commencement of my visit, during the remainder of which the wound is bathed with fresh water; and when I come again to my patient, the vessels have disgorged themselves, the wound no longer bleeds, and is in the most favourable circumstances for immediate union."

The treatment of diseased organs by the continued and regular exercise of their functions, has frequently occupied the attention of our continental brethren. Amongst the most recent applications of this principle will be found that of M. Bonnet,

of Lyons, who has devised a series of apparatus of a somewhat complicated nature, for the treatment of certain affections of the joints, in the production of which the author thinks that immobility plays a considerable part, and which, by the employment of regular and graduated motion, admit of great amelioration, if not of cure. M. Bonnet occupies the chair of clinical surgery in the medical school of Lyons, which he has filled with considerable distinction, being already known in medical literature by his Traité des Maladies des Articulations. The uses to which artificial motion is applicable as a remèdial agent may, in the opinion of M. Bonnet, be divided thus:

1. Articular affections, the result of immobility of the joints, under which denomination may be comprised the swellings of joints and difficulties of movement which are observed as a consequence of the treatment of fractures. 2. Articular affections, the result of sprains. 3. Difficulties of movement consecutive to old but reduced luxations. 4. Chronic inflammations, so called rheumatic; in other words, chronic inflammations without suppuration, without fungosities, and without tubercles. 5. Fungous tumours of joints, the result of scrofulous affections. 6. Anchyloses.

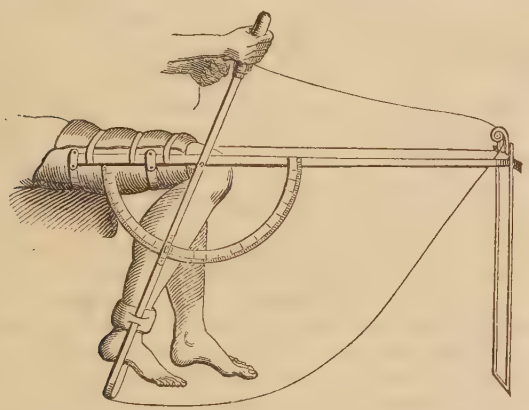
In these several affections the application of artificial motion must undergo certain modifications. In the three first varieties it may, in the opinion of this author, form the basis of the treatment, the disease being essentially local, and the principal indication being to restore mobility. In the chronic inflammation, however, and in cases of fungous tumours, it will be necessary, before all, to combat the cause of the evil, and modify the constitution; but when these indications are fulfilled, artificial motion should not be neglected. In the rheumatic inflammations the cartilages, in part absorbed, offer a rugous surface; the synovial fluid exists no longer, or is replaced by the serosity of hydarthrosis; the soft parts of the joint become thickened and less supple. In this, as well as in the case of fungosities, there is no part of the articulation which, by the application of artificial motion, may not be subjected to pressure, friction, and alternations of relaxations and extension. In anchyloses the application of M. Bonnet's apparatus is limited to those cases in which there exists an incomplete, purely fibrous anchylosis, without deformity of the articular surfaces, and where there is only an ulceration of the cartilages. An objection raised to the employment of any amount of motion in affections of the joints, is the degree of pain thus produced; but, in the opinion of M. Bonnet, a great difference exists in this respect between artificial and spontaneous movements. Thus, when a patient whose knee

is affected stands up, and attempts to walk, he experiences an increase of pain, which is, on the contrary, diminished by repose. If, says M. Bonnet, in place of imposing on the patient the necessity of walking, a complex exercise in which the vertical position is associated with muscular contractions, we cause him to exercise artificial movements in the horizontal position, it produces but passing pain, which decreases each day, and after its employment for a period more or less protracted, walking becomes much more easy.

Each joint requiring a separate apparatus to effect its motions, M. Bonnet has devised a special mechanism for the knee, the elbow, the wrist, &c. In the accompanying figures we present our readers with a view of those adapted to the knee and the ankle, referring to the original treatise(*a*) for further information on this subject.

Considered in a general way these apparatus consist of two parts; one fixed, destined to grasp one of the bones entering into the articulation; the other moveable, and attached to the bone which is to be put in motion.

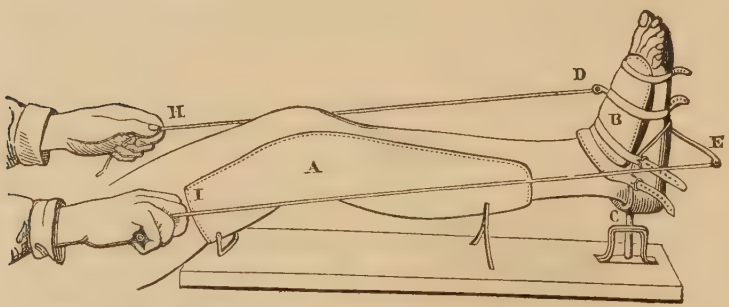
In the subjoined woodcut the thigh is represented enveloped by a cushion which fixes it; two rods of iron, placed one on



either side, stretch horizontally forwards in the axis of the femur, and at the extremities are supported by a vertical rest. The leg is held by means of a bracelet with straps, between two parallel rods, united below, and jointed on a level with the

(*a*) Des Appareils de Mouvement, et de leur Utilité dans le Traitment des Maladies Articulaire. Par M. Bonnet, Professeur de Clinique Chirurgicale à Lyon, 1848.

knee to the horizontal rods which fix the thigh. The external of these moveable rods, prolonged upwards, forms a handle by means of which the patient can effect the movement of flexion. A cord fixed to the junction of the two moveable rods, and playing over a pulley, serves to execute the movements of extension. (This, by the way, appears perfectly unnecessary, as flexion and extension might be both performed by the one handle.) Attached to the external side of the apparatus is found a graduated semicircle, the centre of which coincides with the centre of motion, and is so adjusted that the external rod glides on its surface, like a hand on a dial. A collar of iron and a screw allow this rod to be arrested on different points of the semicircle, and consequently the leg can be fixed at different degrees of flexion. Several apparatus for effecting angular movements have been also constructed by the author. The next figure represents that destined to produce lateral inclination of the entire foot, and a vertical pivot forms the centre of motion.



The limb, flexed slightly and placed horizontally, is received into a concave support, A, which occupies the inferior third of the thigh and the superior three-fourths of the leg. The foot is enclosed in a sort of shoe, B, the superior part of which covers the dorsum of the foot, is moveable, and can be laced more or less tightly by means of straps. To the heel of this shoe is fixed a rod of iron, C, about half an inch in diameter, and three and a half inches in length, which plays as a pivot by its free extremity on the support of the apparatus; it is maintained in a perpendicular direction by a collar of iron. To the centre of the sole against which the foot is applied is adapted a transverse lever, the two extremities of which, D and E, separated from the borders of the foot by a distance of seven or eight inches, serve as points of attachment for two cords, the ends of which, H and I, are worked by the

hands of the patient, who by alternate traction on these cords exercises on the foot a lateral motion, the mode of production of which requires no explanation.

The method of M. Bonnet has been tested in practice, and, according to the author, with very successful results. All his observations show that the application of artificial motion has been harmless. When applied to chronic cases, in which no acute inflammation exists, though a slight swelling and increase of temperature have attended the first essays, these symptoms have been only temporary, and after the end of a certain time the movements, instead of producing pain, have given suppleness and flexibility to the joints. In those cases in which the diseases of the articulations have been produced by exterior causes, a great amount of amelioration, or even a complete cure, has been effected. Sprains of the hip and foot, impediments to motion of the elbow after reduction of old dislocations, and chronic inflammations, whether simple or rheumatic, have been thus treated with success; while as an accessary in the surgical treatment of club-foot, the method has been equally successful. These observations of M. Bonnet we think highly deserving of attention, and notwithstanding that the apparatus presents a certain degree of complication, we cannot think that a praiseworthy attempt to devise some method of treatment for affections which are and have been, in many instances, an opprobrium of surgery, deserves the severe strictures bestowed on it by a writer in the Revue Médico-Chirurgicale(*a*), who classes the apparatus of M. Bonnet with "les machines assez grossières de Fabrice de Helden et de Fabrice d'Aquapendente;" and again: "Il est vrai que M. Bonnet a cherché à remplir certaines indications utiles qui leur avaient echappé. Mais ils n'avaient chacun qu'úne machine; et c'est bien le moins qu'avec quinze machines on en fasse un peu plus qu'avec une seule."

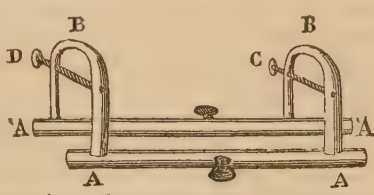
Much yet remains to be tested by clinical experience in the application of this method. We confess that our good faith in the assurance of M. Bonnet and his recorded observations, induce us to entertain a more favourable opinion of the *appareils de mouvement* than that expressed by our contemporary(*b*).

The treatment of varicocele of the cord by counter-irritation has at different periods occupied the attention of surgeons, but

(*a*) Revue Médico-Chirurgicale, Fevrier, 1850, tom. vii. p. 119.
(*b*) *Vide* Bulletin Générale de Thérapeutique, tom. xxxvii. p. 501, *et seq.*

the employment of caustic has hitherto been attended with many difficulties; when applied on the scrotum its action is found insufficient to affect the vein. At the same time that the obliteration of the vein was indicated, it was of the highest importance to avoid interrupting the continuity of the vas deferens, or destroying its cavity. M. Bonnet has endeavoured to realize this object by the construction of a little instrument destined to isolate this duct, while it allows of the free application of the caustic to the spermatic veins. This surgeon has proposed the incision of the skin and fasciæ, in order to allow of the direct action of the caustic on the veins which he wishes to destroy, a plan which he states that he has put into execution with considerable success, at the same time that he was enabled, by an instrument similar to that represented in the subjoined woodcut, to maintain the most perfect isolation of the vas deferens from the cauterizing action.

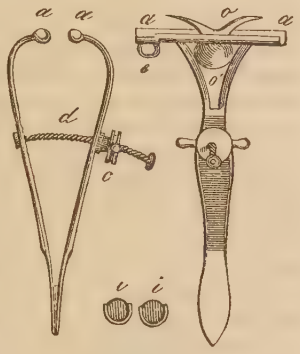
The instrument consists of two semicircular elastic hoops, B, B, uniting the extremities of two parallel rods, A A, which are capable of being approximated by the action of the screws, C, D. The operation, as proposed by M. Bonnet, consists of the three following steps:—1, isolating the vas deferens, by placing the instrument on the cord, and turning the screws C, D, which accomplishes the separation of the spermatic veins from the vas deferens; 2, incising the integuments and fasciæ, and exposing the veins; and 3rd, the direct application of the chloride of zinc (de Canquoin) or the caustic of Vienna. This process presents some features of novelty, and much ingenuity, but will require to be tested by experience before an opinion can be pronounced as to its real merit. The author, a surgeon of distinction, assures us that in his hands its employment has been very successful.



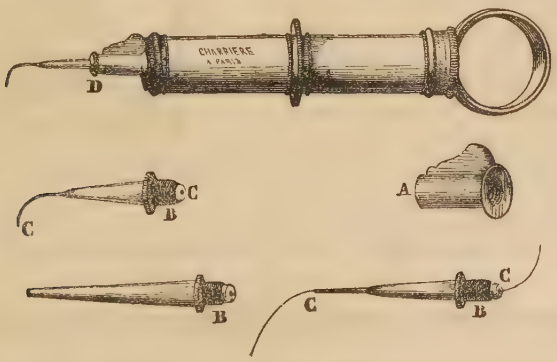
For the cauterization of internal hemorrhoids M. Amussat has proposed a new process which appears to render this operation much more easy and certain in its execution. It consists in strangulating between the teeth of a forceps charged with caustic the pedicle or base of the hemorrhoidal tumour, as represented in the accompanying figure.

The instrument is composed of two blades, similar inferiorly to those of a dissecting forceps, but bifurcated in their superior third. This bifurcation supports two straight, hollow cylinders,

a, *a*, about two inches long, and a fourth of an inch in diameter. By means of a semicircular plate which covers at will the channel *i*, *i*, which these cylinders present, the caustic can be protected from the air, or brought into contact with the tissues which it is required to act on. The semicircular plate is worked by means of two little rings, *e*. A nut, *c*, running on a curved screw, *d*, allows the blades of the instrument to be approximated, and a strong compression to be exercised on the parts, *o*, *o*, which they embrace. The instrument is applied by seizing the hemorrhoid between the two cylinders, then, by means of the rings, *e*, uncovering the caustic (caustiques de Vienne, chaux et potasse); and whilst the cauterization is aided by compression, a stream of cold water is directed with a syringe on the parts, to wash away the superfluous caustic. This process has been three times applied with success by M. Amussat, but in those cases in which the ligature can be employed we confess that the latter would appear to us to answer all indications equally well.



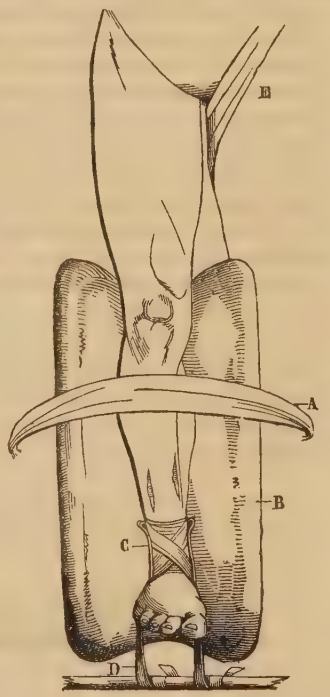
The annexed cut represents Anel's syringe, as slightly modified by M. Charriere. One of the great inconveniences in



the use of this instrument for injecting the lachrymal sac arises from the facility with which it become stopped, when the wire used ordinarily for cleaning it is found to do so only imperfectly. M. Charriere has divided the tube D into two parts, A and B,

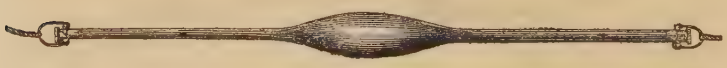
which can be separated for the purpose of being cleaned. The capillary tubes, C, C, can be fitted to the screw A, as represented at D, by means of waxed thread, B B.

The surgical applications of gutta percha and caoutchouc have been multiplied very considerably of late years, and it may be anticipated that both these substances will ere long afford much assistance to the practical surgeon. By the process of vulcanization, caoutchouc acquires such cohesion and elasticity, that it is capable of resisting a very considerable distending force; while being unaffected by the majority of chemical agents, such as the nitric, hydrochloric, and sulphuric acids, the nitrate of silver, and acid nitrate of mercury, we have not to encounter any of those inconveniences in its application which attend the use of other articles which are for the most part influenced by chemical action.



M. Garriel has laid before the Society of Surgery a communication on the employment of vulcanized caoutchouc in surgery, in which, after dwelling on the general uses of this substance, he proceeds to describe an apparatus of continuous traction, which he has proposed for the treatment of fracture of the femur, of which the adjoining woodcut presents a good idea.

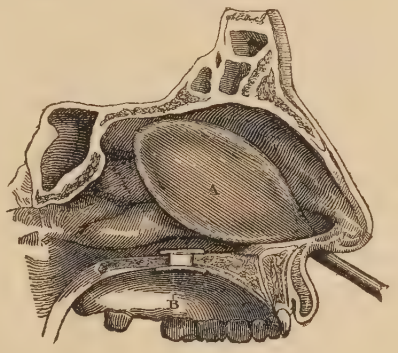
The traction exercised on the groin by the ordinary band is frequently the cause of painful excoriations, which M. Gar-



riel proposes to obviate by the use of a tube in caoutchouc, presenting a slight enlargement about the centre. This tube, when distended with air, as shown in the adjoining cut, pre-

sents a smooth and polished surface, so that the extension may be continued for a very considerable time without inconvenience to the patient. Even when applied over surfaces already excoriated, it will not impede their cicatrization, as was observed in a case under M. Nélaton at the hospital Saint Louis, where large excoriations had occurred in the fold of the groin from the pressure of a perineal band, applied for the purpose of making counter-extension in the ordinary way in a case of fracture of the neck of the femur. In this instance, M. Garriel's tube in caoutchouc was substituted, and in two days after the cicatrization of the wounded surface was complete.

The next woodcut represents an ingenious application of a tube in caoutchouc, carrying at its extremity a dilatable *balloon*, which, when introduced into the cavities of the nose in its undistended state, may, by the process of insufflation, be made to assume very considerable dimensions, and exert such pressure on the mucous surface as to arrest hemorrhage in cases of epistaxis. If the distention be carried still further, not only may the nasal cavities be completely filled, but the *balloon* may be made to present in the posterior part of the mouth. A simple method of plugging the posterior nares suggests itself in examining this tube with dilatable extremity. This operation, as at present performed, whether with a special apparatus or with an ordinary catheter, is frequently very troublesome, though simple in appearance. If the tube represented in the adjoining figure be introduced from before backwards through the cavities of the nose, until it has quite cleared the posterior nares and arrived in the pharynx, and be then dilated and drawn forwards, we obtain a more complete and manageable plug than that usually made of lint. The letter B indicates a sort of obturator for cases of perforation of the palate, the application of which is obvious. Its lightness, and the facility of fixing it, constitute advantages not possessed by any metallic plates.



M. Diday of Lyons has made an ingenious use of the di-

latable caoutchouc tube for the purpose of repressing uterine hemorrhage. Having been called to a case of uterine hemorrhage, in which all the usual methods had been unsuccessfully tried, he resolved on endeavouring to arrest the discharge of blood, which every instant threatened to prove fatal, by the direct application of pressure. The apparatus used consisted of a long tube with a little bladder at the extremity, which was introduced into the vagina, conducted by the index finger, and thus maintained in place whilst insufflation was practised at the other extremity of the tube. The bladder was thus increased in dimensions until it acquired a diameter of about twelve inches, the air being retained by means of a ligature on the free portion of the tube. The hemorrhage was instantaneously arrested; the patient regained strength; and after two days a small quantity of the air was allowed to escape, when no return of the hemorrhage occurring, the entire was withdrawn on the day following.

The next woodcut shows the application of a caoutchouc tube for compression of the prostate when tumefied; a method of treatment which has been already employed by many continental surgeons, and for which particular instruments have been designed by Ducamp, Miquel d'Amboise, &c.

Several other important uses of caoutchouc have been considered by M. Garriel, which we can but glance at at present. Amongst the most useful are dilatable suppositories, the employment of which is indicated in prolapse of the rectum, retractions of the sphincter, compression of hemorrhoids, &c., &c. He has also proposed that pessaries should be constructed of this substance, which, by their pliability, and the facility of introducing and withdrawing them when in a small volume, would give them innumerable advantages over the ordinary wooden instruments, the rigidity of which frequently causes much pain in their introduction and withdrawal.

M. Chassaignac has employed suction tubes of vulcanized

caoutchouc for the removal of deeply-seated collections of matter.

The construction of a species of urinal in caoutchouc, places in our hands a very simple means for avoiding the unpleasant and often fatal consequences which result from incontinence of urine in certain cases of paralysis, and other affections complicated with profound lesion of the voluntary nervous power This little instrument is furnished with an aperture of sufficient diameter to embrace and grasp the penis by a little elastic band such as that by which a glove encircles the wrist, besides which there are two small loops by which it may be attached to a suspensory bandage, while the lower part is supplied with a stop-cock. The use of this little apparatus will be found to add much comfort to the patient's existence, and save him from the unpleasantness of bed-sores in many instances.

Such are a few of the many applications of this substance in the practice of surgery. We have no need here to recall its ingenious use by Dr. Simpson as a substitute for the forceps; and we feel confident that it is destined to lend us even farther assistance(*a*).

We must conclude for the present our notice of the many aids to practical surgery for which we are indebted to the Continental school, but we hope in an early Number to be enabled to bring the subject again under the notice of our readers.

On Diseases of Menstruation, and Ovarian Inflammation, in connexion with Sterility, Pelvic Tumours, and Affections of the Womb. By EDWARD JOHN TILT, M. D. London, Churchill. 1850. Post 8vo. pp. 250.

DR. TILT informs us in his preface, that the views put forward in this work were first expounded in a series of papers which appeared in the numbers of the Lancet for 1849; and that, having been favourably noticed by some contemporary organs of the medical press, and also by many of his professional brethren, he was induced to publish them in a separate and more perfect form. In this we think he has acted wisely, as his writings are upon subjects that deserve the deepest attention, and a more prominent place in our medical literature than the pages of a periodical could secure to them. In no department of physiology, perhaps, has such remarkable progress been made of late years as in that which relates to the female generative system.

(*a*) *Vide* Bulletin Général de Thérapeutique, tom. xxxvii. p. 547, *et seq.*

For our own time was reserved the discovery of the paramount importance of the ovaries in the female economy, and of the predominant influence which they exercise over all the characteristics and peculiarities of the sex. The assigning to these organs their true and proper position in the female organism was, we repeat, an advance of great importance; it was in fact laying the foundation stone of the physiology and pathology proper to woman. The volume before us is a result of this grand discovery, and if the experience of practitioners establishes the accuracy of the pathological views which it contains, as we predict will to a considerable extent be the case, it will furnish a most striking example of the light which physiology sheds upon practical medicine.

We shall now proceed to lay before our readers some of the prominent points of interest or novelty contained in Dr. Tilt's work. Passing over twenty pages of introduction, which might very well have been omitted without in the least degree lessening the value of the book, we find, towards the conclusion of the "Prolegomenon," some useful and practical instructions upon the different modes of detecting ovarian disease by physical examination. Four methods are described:—I. Abdominal exploration, which is so well understood that we need say no more of it here than to quote the remark that, unless the swelling of the ovaries be considerable, it will not be discovered by this mode of exploration. II. "Exploration per vaginam." In effecting this the middle and index finger should be employed, and at the same time pressure is to be made over the hypogastric region, so as to depress the uterus and its appendages into the pelvic cavity; then, by raising up the vaginal cul-de-sac which surrounds the os uteri, we are enabled to estimate the amount of pain caused by pressing the swollen ovarium. Though at the risk of being charged with awkwardness, we cannot forbear declaring our belief that the recognition of ovarian disease by the manipulation just described is by no means so simple as Dr. Tilt would lead us to believe. Still it is a method that should never be omitted, particularly in the advanced stage of a case, as it will reveal to us whether any fluctuation be sensible through the vaginal walls, or not. III. "Rectal exploration." Dr. Tilt agrees with Löwenhardt (the proposer of this plan) and others as to the possibility of reaching the ovaries in their natural situation by this procedure. The most effectual way of performing the examination, and that which permits the finger to reach the greatest height, is to place the patient in the obstetric position, and make her draw her knees as near to her breasts as possible:

"When introduced into the rectum the finger can generally attain and circumscribe half of the posterior surface of the uterus; and if not accustomed to this mode of examination, the medical attendant will esteem the healthy uterus to be morbidly swollen. The finger will also be able to detect any swelling of the broad ligaments, and likewise to feel the ovaries, even when they are not swollen, like a knuckle on either side of the uterus, seeming to spring from one or other of the sacro-iliac articulations, as Dr. Rigby has correctly stated. When its structure is healthy no pain is experienced on pressure of the ovary; but when it is inflamed, the patient often expresses by her features, that we touch the seat of the disorder. . . . . Pressure on the ovary also produces as much pain in the inguinal region as if that were the actual seat of the impact. If the ovary be much swollen and the abdominal parietes thin, it is possible, by pressing the ovarian region, to force the ovary against the finger; and this will frequently cause the patient to exclaim that we hold the complaint between our fingers."

IV. "Double touch" is a mode of exploration which combines the two last described, so that, the index finger being placed in the rectum and the thumb in the vagina, it is possible to embrace between them any intervening morbid growth. Dr. Tilt seems to regard this as a source of valuable information in some cases, especially where there exist moderate-sized tumours, not large enough to rise above the pelvic brim, and still small enough to escape identification by the finger in the vagina or rectum alone. He gives some examples in illustration of the value of this means of diagnosis.

This brief abstract of the contents of twenty-two pages will, we trust, be sufficient to convey a tolerable notion of the various modes to be employed for obtaining sensible evidence respecting the condition of the ovaries.

Of inflammation of the ovaries, our author admits but two forms,—subacute, which also includes chronic, and acute ovaritis. In chapters I. and II. he describes the morbid anatomy and causes of subacute ovaritis; and his observations evince a good deal of research and sound physiological reasoning. As the subject of retroversion of the womb, and the use of certain forms of pessary for its relief, are questions upon which even the leading members of the profession entertain very conflicting opinions, we may be excused for transcribing a passage which bears very forcibly upon them:

"We agree with Dr. Hervez de Chegoin, that sometimes retroversion of the womb, by its pressure on the ovaries, may greatly irritate them; but we think Dr. Rigby has exaggerated the importance of this cause of ovaritis, and that in many cases the use of the stem-pessary, without curing the retroversion, prolongs ovarian and

uterine irritation. We have so often seen this to be the case, that, without denying the good results which may have followed the use of the stem-pessary in more skilful hands, we do not intend again to employ it. And when we remember that many of the uterine deviations and flexions are *congenital* (as M. Jobert de Lamballe has well proved), and therefore beyond the pale of treatment; or else of so long a standing that they cannot be permanently *redressed;* and that in the majority of cases they are perfectly *harmless* (a fact which has lately been brought into the strongest relief by Professor Paul Dubois, Hervez de Chegoin, and been received without contradiction in the important discussion on uterine disease now proceeding in the Académie Nationale de Médecine);—finally, when we consider the mischievous effects often entailed by the employment of the stem-pessary, and the fatal result it determined in the case reported by Mr. Bransby Cooper, we think our resolution is well founded, and, using the words of an anonymous writer, we are tempted to say 'that it is scarcely consistent with right principle to seek a doubtful good by means which have been proved to be fatally dangerous even in well-skilled hands.'"

The symptoms of subacute ovaritis are such as we might *a priori* expect:—a dull pain in the ovarian region, often imperceptible when the patient is in a state of repose, but brought on by walking, riding, pressure on the side, or even by any sudden movement. The act of straightening the thigh upon the pelvis also increases the uneasiness, so that some patients cannot maintain an upright posture for any length of time without resting the foot of the affected side on a stool. Radiating from the ovarian region, pains of a heavy, dragging, sometimes severe nature, are felt across the loins, descending towards the thighs and fundament. These are distinguishable from other pains resembling colic, which depend on uterine contractions, and also from those superficial pains of a neuralgic character produced by reflex nervous action. They are seldom so acute, however, as to induce the patient to seek advice, and when she does she is frequently treated for uterine disease. Dr. Tilt further adds that sexual connexion awakens or aggravates these pains.

All these are what he calls the "common symptoms" of subacute ovaritis, but he is of opinion that "the same morbid lesions are attended with different accessory symptoms in different women, according as they react on a womb more or less excitable, on a nervous system differently prone to respond to irritation, or on fluids more or less differently vitiated by the unknown causes of scrofula, &c." The consideration of these *possible* symptoms leads him to the recognition of four different *types* of the disease, viz., the amenorrhœal, the dysmenorrhœal, the

menorrhagic, and the hysterical. The attempt to refer, in a large number of instances, the cause of these derangements of menstruation to a lesion of one or both ovaries, impresses us as being the most novel and interesting feature of Dr. Tilt's work; and, within certain limits, it is a doctrine that harmonizes very beautifully with our present enlarged ideas of the functions and widely extended influence of the ovaria. Still following Dr. Tilt, we shall give, in as few words as possible, the distinguishing marks of each of these four phases or types of subacute ovaritis.

The "amenorrhœal type" is generally the result of subacute ovaritis attacking a woman previously to or pending the menstrual flow, in consequence of which it is arrested or prevented, and an inflammatory tendency originated. In such cases, the early and free application of leeches may not only relieve the pain, but bring about the suspended discharge, or cause it to return at the proper time. If, however, this desirable result does not ensue, the inflammatory disease may become established in the ovary, producing the symptoms already described, and may likewise be accompanied by chlorosis. The form of chlorosis so induced he regards as identical with that described by Frank, Wendt, Andral, and others, under the names of chlorosis florida, or chlorosis fortiorum, or chlorosis stenica; and which Cullen, Broussais, and Dr. Tilt have seen to come on in the midst of perfect health, apparently in consequence of sudden suppression of the menstrual discharge. He carefully distinguishes this from the form of chlorosis which arises gradually, and without being determined by any ovarian or uterine inflammation, and which, with P. Frank, he ascribes to "arrest in the normal evolution of the ovaries." 2. "Dysmenorrhœal type." That painful menstruation frequently depends on ovarian inflammation is a fact admitted by Oldham, Rigby, Ashwell, Coley, and others; and all observant practitioners must, we think, have noticed, in many of these cases, the existence of constant pain in the inguinal regions, aggravated at the time of the catamenial flow. The mode of action of subacute ovaritis in the production of dysmenorrhœa, Dr. Tilt tells us, is two-fold: first, it may do so "as a simple result of the process of morbid ovulation, and not by the agency of any appreciable inflammation of the womb, or of its neck, and without the appearance of any false membrane in the catamenia." This is what Dr. Tilt has seen, and believes to be frequent. Secondly, "Ovaritis," as Dr. Oldham has well shown, "often causes dysmenorrhœa by determining hypertrophy of the uterus, inflammation of its neck, and a diphtheritic exudation from its mucous surface." 3. "Menor-

rhagic type." Dr. Tilt candidly admits the impossibility of explaining, in the present state of our knowledge, why the lesion under consideration should, in certain cases, be attended with scanty menstruation, while in others it is accompanied by an inordinate flow. The latter result, he says, has generally been met with in women of irritable nervous constitution, in whom the uterus seems most liable to engorgement. In illustration of this type of ovaritis, a case is cited from the writings of Dr. Rigby. 4. "Hysterical type." Since the days of Hippocrates it has been the prevailing opinion amongst physicians that, somehow or other, hysteria originated in the generative organs; and as the uterus was considered to hold the first rank of importance in this system, so it was supposed to have the largest share in the production of the disease. Modern research, however, has shown that to the ovaries, and not the uterus, belongs this exalted position in the female sexual system. It is reasonable, therefore, that a corresponding change should take place in the pathology of hysteria, and that we remove its seat from the uterus to the ovaries. This, in fact, is what Dr. Tilt endeavours to do, and he strengthens his views by a variety of collateral evidence drawn from different sources. To give here even an outline of all his arguments would be quite impossible, and, in justice to him, none should be omitted; we can only recommend the reader to study them for himself. But we are free to confess that, although the author has succeeded in pointing out the existence of a frequent connexion between hysteria and ovarian irritation or inflammation, yet we cannot believe with him that hysteria is "always connected with ovarian irritation, and often depends on subacute ovaritis," for we frequently see marked hysterical symptoms come on and disappear in a manner that would almost preclude the possibility of their being the consequence of any inflammatory condition of the ovary; and, moreover, hysteria has been met with in the male sex. Nevertheless we do not at all wish to undervalue Dr. Tilt's researches. He has given a new, and, we doubt not, a profitable direction to the investigation of this most interesting subject; and even though subsequent inquiries may not confirm to the full extent what he has advanced, still he will be entitled to a large share of praise.

The next chapter deserves a careful perusal; it is on the "terminations of subacute ovaritis." These he reduces to two, sterility and uterine inflammation. Subacute ovaritis may, he says, produce sterility, "1, by accelerating the shedding of imperfectly developed ova; 2, by the retention of blighted ova; 3, by impeding their transmission from the ovaries to the ute-

rus." This seems intelligible enough, and not opposed to any of our present ideas respecting the functions of these organs. But that ovarian inflammation should be a cause of uterine inflammation, appears at first rather irreconcileable with established notions. And yet we are in justice bound to acknowledge that, to our judgment, he has made good his position, though the cases exemplifying it may not be of frequent occurrence in practice. The treatment of subacute ovaritis, as laid down by Dr. Tilt, may be briefly described. It consists in the free use of local depletion, followed by blisters and counter-irritation with antimonial ointments, together with strict attention to the state of the bowels, and the occasional employment of purgatives, or, what is more beneficial, tepid enemata. Medicated mercurial inunctions, and the tepid bath, are favourably spoken of; and abstinence from all sexual intercourse is strictly enjoined, so long as there are any signs of ovarian inflammation. Whilst these measures are being employed, which should be during the interval between the menstrual epochs, the general treatment of the patient should be such as to invigorate the constitution without increasing the local irritation and determination of blood to the pelvic organs. The protection of the feet from damp is of course a point of great importance, but what is of still more consequence, and much dwelt on by Dr. Tilt, is to protect the pelvis effectually from cold, by the use of drawers.

In the management of the several *types* of this affection, it does not appear that the treatment requires to be materially altered, the same general rules applying to each. The amenorrhœal type, even when accompanied by its frequent attendant, chlorosis, still demands the local abstraction of blood. Dr. Tilt cautions the practitioner against confounding the two forms of chlorosis before spoken of, as the remedies that would be advantageous in the one aggravate the other.

In reference to the pathology of acute ovaritis Dr. Tilt truly says he treads on less disputable ground than when speaking of the subacute form. That variety of the disease, in particular, which occurs as a consequence or a concomitant of the puerperal state, is well known to physicians through the writings of Dr. Doherty, Dr. Churchill, and others. In chapters VII., VIII., and IX., the symptoms, terminations, and treatment of acute ovaritis are fully and ably discussed; and numerous cases, chiefly from continental or English authors, are inserted for the purpose of illustration or proof. When suppuration has once taken place in the inflamed ovary, he thinks resolution is rarely to be expected; and of the various ways by which the matter may es-

cape, the most frequent and least dangerous mode is through the vagina. An early evacuation of the contents of the abscess is recommended, and for this purpose the spot to be selected must, of course, be very much regulated by the circumstances of each individual case; but Dr. Tilt gives a preference to puncture from the vagina, where this is at all practicable.

We have now concluded our analytical notice of Dr. Tilt's book, and it only remains for us to express in general terms our estimate of its merits. That it contains many original views regarding the pathology and treatment of a numerous and important class of cases, the reader has been already made aware. How far they will bear the test of experience, we do not take upon ourselves to define, though inclined to believe that they have much foundation in truth. We sanguinely hope and expect, however, that one great benefit to science and humanity may arise from the publication of this volume, namely, that it will help to remove the too exclusively local and mechanical ideas now so widely prevalent respecting certain diseases of the womb, and which have led to a system of practice, not only of questionable efficacy, but repugnant to that natural feeling of delicacy which, for the wisest of purposes, has been implanted in every female mind. This is a point upon which much has been said and written, both by the opponents and advocates of the speculum, but neither, we think, have placed the subject in its true light. Dr. Tilt remarks: "With regard to the indelicate in medicine, it depends solely on the intentions of the operator, and never on the operations it may be necessary to perform." No doubt this may be true in the ordinary acceptation of the word "delicate;" but we contend that the operations alluded to cannot be performed without to a certain extent doing violence to that chaste sentiment of modesty or delicacy,—call it which we may,—that forms the noblest ornament of a woman's character, and the best preservative of female purity. To treat this feeling with the utmost respect and consideration is the sacred duty of the physician, as much so as it is to keep secret the diseases and circumstances of his patients: he who acts otherwise degrades his profession, and is morally unfit to practise it. Before having recourse to the vaginal speculum, then, he should satisfy himself that there exists an imperative necessity for his doing so, and that benefit is likely to result to the patient from the examination. These are the only conditions which, in our mind, justify the practice; and we do not hesitate saying, that, where they are disregarded, this most valuable means of diagnosis becomes an agent of demoralization.

In a former Number of the present series of this Journal(*a*), we took occasion to express our convictions that the vaginal speculum was often most unnecessarily employed; and even threw out the hint that a monograph on its abuses was much wanting. We rejoice to see that this call has in a manner been responded to, and that other physicians, both of weight and authority, are beginning to entertain the same opinion, and to look beyond the os and cervix uteri for the causes of disease in these parts. Already a reformation somewhat analogous to what Abernethy effected for surgical diseases, has commenced; and we feel assured that Dr. Tilt's work will powerfully co-operate in helping it forward, and in placing the pathology and therapeutics of diseases of the female generative organs upon a sound and permanent basis.

Atalektasis Pulmonum, or Closure of the Air-Cells of the Lungs in Children. By George A. Rees, M.D. London: Highley, 1850. 12mo. pp. 42.

Until within a recent period, the condition of the infantile lung, of which the work before us treats, was imperfectly understood. In 1832 Joërg first pointed out its true character, and showed that it was an imperfect expansion of the lungs, in fact, a prolonged state of the intra-uterine condition of these organs. His original memoir was translated by the late Dr. West, and appeared in the fifth volume of our first series. The views he brought forward were not appreciated until the exact nature of the affection was elucidated by the experiments of Bailly and Legendre, as we find that in a paper published by Dr. Rees in the Medical Gazette, in January, 1839, to which he alludes in his present little work, the opinion that this affection of the lungs was chronic pneumonia is prominently inculcated. This state of the lungs has been called atalektasis, and our author seems to wish to claim for himself the selection of this name. Joërg, however, first used it, and was followed in the adoption of the term by Hasse, in his Pathological Anatomy. We cannot compliment its originator on the judgment displayed in his choice of the nomenclature; he has added to that long list of "hard names" so frequently met with in medical writings, which bewilder the student, are burdensome to his memory, and should not be adopted in circumstances such as the present, when ordinary language

affords so clear an exposition of the nature of the affection, as the words "closure of the air-cells in children" convey.

Dr. Rees describes two forms under which this condition of the lung exists: first, as a defect from the hour of birth; secondly, occurring as a disease after birth. Altered movement of the ribs in respiration is, according to the author, the pathognomonic symptom common to both forms; and the character of the movement is, that, during the inspiratory effort, the ribs move inwards and backwards towards the mesial line of the trunk, instead of outwards as in ordinary respiration. A peculiarity in this induced deformity of the chest, in contradistinction to that of a strumous character, is thus described by the author: "The point of contraction then takes place at a little distance on either side of the sternum, at the line of junction between the ribs and their cartilages; a groove more or less developing itself there, which produces a channelled appearance on either side of the sternum."

As the necessary consequence of imperfect respiration, cough, dyspnœa, emaciation, and deformity of the chest are the symptoms observed. On *post mortem* examination, the portions of the lungs found to be most frequently affected are the lower lobes and the middle lobe of the right lung; these present a dark purple colour, are solid, do not crepitate on pressure, and sink in water.

We think that Dr. Rees places too much reliance on peculiarity in the movements of the ribs as a diagnostic mark of the first form of atalektasis. In the early stage of infantile life, the respiration is principally abdominal, and we can understand the existence of this disease to so great an extent as necessarily to interfere with healthy function, yet to be incapable of being ascertained by observation of the mere movements of the thorax. He does not allude at all to the aid derivable from auscultation; and although we are not disposed to place implicit confidence on this assistance to diagnosis in such cases, yet without its use the observer can only guess as to whether the lungs are fully expanded or not.

In the great majority of cases, asphyxia in new-born infants, arrived at the full period of gestation, depends on causes unconnected with an abnormal condition of the lungs: the character of the labour disturbing the circulation in the child, or causing pressure on the brain, will retard respiration for a period, although the lungs may be in a state of perfect aptitude for that function, the susceptibility to the stimulus of the air being only weakened, not destroyed. Although, therefore, closure of the air-cells may continue for a time after birth, such condition

ought only to be regarded as an accidental circumstance; and the first case detailed by Dr. Rees presents an example of this class. A portion of the lung remaining in the fœtal state after respiration has been established in the remaining parts is the true characteristic of atalektasis; and where this phenomenon is absent the disease cannot be said to exist.

This line of demarcation should be kept in mind by the accoucheur, because it is well known that, however unpromising appearances may be in infantile asphyxia at the hour of birth, well-directed efforts to establish respiration sometimes succeed after a much longer period of time than is generally supposed. In our own experience forty minutes elapsed in one instance before the first attempt at inspiration was made, and yet respiration was eventually established; the child lived, and became a thriving infant.

The treatment recommended by Dr. Rees for asphyxia in new-born infants is far too much generalized. The abstraction of blood from the cord and the use of the warm bath are by no means applicable to all cases, and the appropriate adoption of these remedies requires sound judgment on the part of the practitioner.

In relation to the treatment of the second form of the disease, the author, with excellent judgment, remarks, that it must be principally hygienic; for, occurring, as it chiefly does, amongst the most miserable paupers of crowded and ill-ventilated cities, little benefit can be expected from medical treatment while the patient continues exposed to the chief influential cause in the production of the malady. Change of air to a healthy locality is, therefore, indispensable. We must refer our readers to the work for an account of the therapeutic means suggested for removing this condition of the lungs. They may be summed up as being directed to promote the action of the skin and kidneys, combined, as far as possible, with the exhibition of tonics.

We may observe in conclusion, that this little work is written in a clear and easy style, and presents a concise compilation of the pathology of an interesting form of disease, which deserves the attention of the physician both in a practical and a medico-legal point of view.

The Principles of Surgery. By John A. Orr, A.B., F.R.C.S.I., one of the Surgeons of the City of Dublin Hospital. Dublin: Fannin & Co., 1850. 12mo. pp. 496.

The Practice of Surgery. By John Hastings, M.D., U.S.N., Lecturer on Surgical Anatomy and Operative Surgery. With numerous Illustrations. Philadelphia: Lindsay & Blakiston, 1850. 8vo. pp. 479.

In the progress of medical science we may observe certain periods which recur with tolerable regularity, when, after special original investigation and individual research have collected in our Journals and in the Transactions of our various medical associations, a considerable amount of new matter, and made important additions to the general stock of knowledge, it becomes necessary to collate, classify, and bring together, in a form convenient for reference, the several results which have been thus obtained by observers who have seldom acted in concert, whose labours have in few instances been devoted to the pursuit of a common object, and between whom a difference of language frequently raises a barrier of separation wider than that which the Atlantic forms between the investigators of medical science in Europe and their brethren of the new world. In the history of law, the process of *codification* is somewhat analogous; and, whether in law or medicine, those to whom is committed the task of compiling, classifying, and collating the labours of others, must be considered as having undertaken an honourable and meritorious duty, which, though it be looked upon as secondary in importance and rank to that of original research, equals it at least in utility, and is entitled to praise in proportion to the excellence of the work. While, then, we consider it but just that the first place of honour should be given to the authors of important monographs and original memoirs, we reserve a full and generous praise for those who have well accomplished the task of compilation; at the same time that the lash of our retributive criticism shall fall heavy on that class of *exploiteurs* who disgrace the name of author, and, instead of this honourable title, merit only that of *bookmakers*.

Starting with these principles then, we shall find that the works before us must not be examined as if they laid claim to originality,—to this neither of them raises any pretensions; we shall, therefore, proceed to the inquiry as to how they have severally fulfilled the necessary indications; how far they may

be looked on as giving a just estimate of the present condition of surgical science; and, finally, how far we, in our critical capacity, can undertake the serious responsibility of recommending them to the student and the practitioner.

In Ireland, clinical surgical observation has been actively carried on, and many important monographs have issued from the Press, during the last three quarters of a century. From the elder Dease to our own days, the work has been passed from hand to hand, and many a goodly volume has been given to the light from the Irish Press; but we believe it may be said of all without exception, that their authors devoted their attention to the investigation of special subjects, or at most took up particular departments of surgery; and with what success, we appeal for proof to the frequency with which citations are made, in both English and Continental works, from Irish writers. Mr. Orr has, we believe, been the first Irish surgeon who has undertaken anything like a systematic work or treatise which should embrace all departments of surgery. Of the difficulty of the task which he set before himself, but one opinion can be entertained; and most persons will, perhaps, agree with us in saying, that this talented young author could have easily chosen an easier path to fame, one beset with less difficulties, and perhaps more speedily conducive to professional success. However, that the task remained to be done, and that it awaited a workman, we acknowledge. For the manner in which the work has been achieved we shall say more anon.

The object which the American surgeon, Dr. Hastings, has aimed at, he states to be, "that his work may serve as a *guide-book* to the *student* and young practitioner in surgery;" while "his chief endeavour has been to include all that is essential, with as much brevity as accuracy and clearness would allow." Let us see how the countryman of Physick acquits himself.

Both our authors commence with the subject of inflammation, which they have treated pretty much *in extenso;* but, notwithstanding that some theoretical considerations have been entered into, neither has favoured us with anything like a detailed account of the modern views on this subject. Dr. Hastings presents his readers with a tabular view of the results arrived at by M. Lecanu, and MM. Becquerel and Rodier, in their analyses of healthy blood; but surely it is a singular omission, as the subject has been entered into, not to have given some analysis of diseased blood; for we apprehend that it is from a comparison of the healthy and diseased conditions of this fluid that

all useful deductions must be drawn. Whatever value the analysis of the healthy blood by itself may have in a physiological, it can have but little in a pathological point of view, unless placed side by side with the results of the analysis of blood in some abnormal conditions.

The management of inflammation, and the subjects of abscess, ulcers, and erysipelas are next discussed, and nearly in the same order, by both authors. The narrow limits which they have prescribed to themselves prevent either from treating these important topics at the length they deserve; but we have no hesitation in saying that Mr. Orr has done them more justice than his transatlantic competitor, for he has certainly evinced the greater judgment in the selection of his authorities and methods of treatment, and having given himself a little more space, he has been thus able to enter more fully into particular indications. As contrasting the relative merits of the two authors in this particular, we would refer our readers to the section on "Abstraction of Blood,"—Orr, p. 28, *et seq.;* "Blood-letting,"—Hastings, p. 40, *et seq.:* "Erysipelas,"—Orr, p. 65, *et seq.;* and the same subject as treated by Hastings, p. 51, where this important topic is summarily disposed of in a little more than two pages by the latter author, without any mention of the writings of Desault, Lawrence, or Dupuytren, or, indeed, any authorities except Dr. Gibson and Mr. Liston.

Passing over the section on wounds (including gun-shot wounds), and tetanus, which are very briefly considered—the latter in about two pages,—we find the second division of Dr. Hastings' work opens with the subject of strangulated hernia, which is liberally illustrated by woodcuts. Of the manner in which the several operations are described we have little to say, except that the space devoted to them is much too limited to allow of their being done justice to even by the most accomplished pen; and in this particular, again, the work of Mr. Orr may be contrasted favourably with that of Dr. Hastings. While examining the woodcuts presented to us in the work of the latter, we have been struck with the remarkable resemblance they bear to those with which we had been familiar in the books of Liston and Fergusson; and having been at the trouble of instituting a careful comparison, we have no hesitation in saying that, with a very few exceptions, Dr. Hastings has illustrated his work by a wholesale plagiarism of the engravings which are to be found in the treatises of the above-named English surgeons; indeed we entertain serious doubts as to whether there is one single original woodcut in the entire book. Nor is this plagiarism in the least degree excused by the great display of

ingenuousness with which we are informed in the preface that "the following authors have been freely consulted and used,—Sir A. Cooper, Fergusson, &c., &c.," for it is only incidentally that any mention is made in the text, in a very few instances, of the source from which the cut has been borrowed. Such practices cannot be too much reprehended. If a lecturer on operative surgery in the great city of Philadelphia had nothing to give to the medical world but a *plat réchauffé* of the labours of his European contemporaries, better for the honour of the great nation to which he belongs that he had never conceived the idea of becoming an author.

We gladly turn from this plagiaristic compilation to the work of Mr. Orr, who, in his first essay at authorship, has really proved himself worthy of far other fellowship. In the Second Part of his book he has entered into the subject of fractures at very considerable length; and the chapters on "General Doctrine," "Reunion of Bone," and "Ununited Fracture," will be found to contain a succinct account of many of the more important opinions on these several topics. The next subject taken up is that of "Particular Fractures," in which the best methods of diagnosis and the indications of treatment are considered; but we cannot avoid expressing our opinion that the observations on Colles' fracture of the radius are hardly as complete as we could wish; and we must say that the omission of Dr. R. W. Smith's name in connexion with this subject was hardly to be expected in the writings of an Irish surgeon. We are sorry to find that the same forgetfulness is manifested in the description of *congenital luxations of the humerus;* while in treating of the injuries of the neck of the thigh-bone and of neuroma, the works of Mr. Smith have been pretty freely made use of.

Of the manner in which Mr. Orr has treated the several subjects considered in his work, we can truly say that, notwithstanding the limited space which he has allowed himself, he has in general been successful in giving a clear, though of course condensed, account of the various opinions which have been advanced from time to time, either in systematic works or special monographs. The indications of treatment are pointed out with perspicuity and judgment; but we do feel it necessary to say that to us it appears that Mr. Orr would have done more justice to his own powers as a writer had he undertaken to give a more extended and copious treatise on the principles of surgery. We have ever looked with feelings of distrust on the works which have issued from the London Press in the form of manuals, though it is true that the books of Fergusson and Taylor

have lent this form of publication a degree of lustre which has been reflected on many who have not proved themselves worthy of the companionship of the authors just named. If, therefore, an extensive issue of systematic works should be contemplated by Irish authors, we would counsel them to avoid a form which throws mechanical obstacles in the way of ability, necessitating a curtailment and condensation incompatible with great excellence of style or matter.

There is one feature in the work of Mr. Orr which we would wish to see more extensively imitated by his successors, namely, the appending to each section or chapter a list of the authors whose works have been consulted, or from whose monographs more detailed information may be obtained by those engaged in investigating any special form of disease. In examining the bibliographical references to his work, however, we have been impressed with the fact that the author has been least just to his Irish contemporaries and predecessors. We have already had occasion to call attention to the omission of all notice of Professor Smith's name in connexion with subjects which have received extensive elucidation from his researches; and in the chapter on Diseases of the Eye we have looked in vain for the name of Wilde amongst the several authors who have been consulted, an omission which we consider the more reprehensible, inasmuch as the name of another Irish surgeon occurs in it very frequently. In making this remark we beg it to be distinctly understood that we have no intention of instituting any comparison between the labours or the merits of the two observers in question. Had Mr. Orr referred to and quoted from the writings of Professor Jacob even more fully and freely than he has done, we should only say that he had done that which the great reputation and the important contributions to ophthalmic surgery of his distinguished colleague fully merited; but we are clearly of opinion that any treatise on diseases of the eye from which the name of the well-known oculist of St. Mark's Hospital, whose writings have so often adorned the pages of both the present and former series of our Journal, is omitted, has failed to present to the world a just view of the condition of ophthalmic surgery in Ireland. The name of Mr. Wilde will be found once only in Mr. Orr's book, amongst the references appended to Chap. XII., On Diseases of the Ear. That this name should not be met with in so imperfect a work as that of Dr. Hastings surprises us but little, but it certainly behoves an Irish aspirant to fame to be just, if not generous, to his own countrymen.

We regret that we have been compelled by that sense of

justice which should always guide the impartial critic, to make these strictures, the more especially as we believe that the fault is one more of omission than of commission, requiring merely to be pointed out for correction in future editions. The book, taken as a whole, is one that cannot fail to add character to our Dublin school, and affords additional proof that we have among us young men of patient research and laborious habits, who will not permit the fame we have already acquired throughout the world to droop.

The Treatment of Secondary, Constitutional, and Confirmed Syphilis, by a safe and successful Method; with numerous Cases and Clinical Observations. By LANGSTON PARKER, Surgeon to the Queen's Hospital, Birmingham. London, Churchill. 1850. 12mo. pp. 112.

TEN years ago, Mr. Parker published a work, entitled, "The Modern Treatment of Syphilitic Diseases," and in six years afterwards a second edition of it appeared, in which he drew attention to the cure of all forms of constitutional syphilis by means of moist mercurial vapour. In the Preface to the present volume the author states that he has been extensively engaged in the treatment of syphilis, both in hospital and private practice, but more especially in the latter; and that the result of his experience is, that the treatment of syphilis by what he denominates the "mercurial vapour bath," that is, surrounding the patient with an atmosphere of mercurial vapour in a moist state, is more successful and less hurtful than the mercurial treatment conducted in the usual way; and he moreover affirms that the mercurial vapour bath does not produce mercurial fever, salivation, ulceration of the mouth, erythismus, debility, or any form of cachexia, so common from prolonged ordinary mercurial treatment; further alleging that it possesses the superior advantages of effecting speedy and permanent cures, without confinement and without risk.

The following is the manner in which Mr. Parker uses his mercurial vapour bath:

"The patient is placed on a chair, and covered with an oil-cloth lined with flannel, which is supported by a proper framework. Under the chair are placed a copper bath containing water, and a metal plate, on which is put from one to three drachms of the bisulphuret of mercury, or the same quantity of the grey oxide, or the binoxide; under each of these a spirit lamp. The patient is thus exposed to the influence of three agents, heated air, common

steam, and the vapour of mercury, which is thus applied to the whole surface of the body in a moist state. After the patient has remained in the bath from five to ten minutes, perspiration generally commences, and by the end of twenty or thirty minutes, beyond which I do not prolong the bath, it is generally excessive."

The lamps are then removed, and the body well dried; the patient is suffered to repose for a time, during which he drinks a cup of warm decoction of guaiacum, sweetened with syrup of sarsaparilla.

"Each particular case would require a greater or less modification of this kind. The form of mercurial employed is also of consequence; in skin diseases the bisulphuret is to be preferred; in disease of the throat or nose, the grey oxide or binoxide is better, because the patient can bear the head immersed without sneezing or coughing, which he cannot do when the bisulphuret is used."

Mr. Parker states further on that the plan he is advocating does not require that the patient should forego his ordinary occupation, or that he should be confined to the house during its use; at the same time he admits that its effects would be accelerated by confinement to bed, or to a couch in a moderately warm room. The author conceives that the moist mercurial vapour, if employed as directed by him, is capable of curing the disease without the assistance of the internal administration of mercury; but he says that the cure is generally expedited by exhibiting it in small quantities. He often combines his external treatment with the exhibition of sarsaparilla and guaiacum; and he says that when the internal use of mercury is required, it is surprising how small a quantity will answer when the patient is using the mercurial vapour bath.

"The mouth is commonly affected after using four or six baths, more quickly if the head be immersed, which is better. The patient can bear the head in the bath for five, ten, or even twenty minutes without inconvenience; patients vary in this particular, and it depends very much on the form of mercurial employed. The gums, when affected, are red, elevated, and tender; but the baths never produce salivation, or ulceration of the mouth."

Mr. Parker appends thirty-two cases of secondary syphilis treated by the mercurial vapour bath, the cures of which are stated to have been rapid and permanent.

On reading the title page of Mr. Parker's work we were naturally led to expect a novel and successful mode of treatment proposed for the cure of obstinate cases of secondary syphilis; but, after a careful perusal of the thirty-two cases recorded by the author, we are not a little disappointed, for we find that

the treatment by fumigation was, in the bulk of cases, combined with the exhibition of medicines which have already acquired a high reputation in syphilitic diseases, such as the hydriodate of potash, iodide of iron, sarsaparilla, guaiacum, corrosive sublimate, &c.; and we cannot but think that the beneficial effects of Mr. Parker's treatment are, to a great extent, due to what he would appear to look on as mere auxiliaries. The great objection to the treatment by fumigation is, that when it is conceived necessary to use it, so as to produce its constitutional effects, it becomes a very difficult matter to regulate its action. This we know from personal experience; for we have been in the habit of using mercurial fumigation in certain local forms of syphilis with advantage, in the manner recommended by the late Professor Colles. His method may be conducted in an easy and comfortable manner by directing the intended dose of cinnabar or grey oxide of mercury to be mixed with melted wax, and, with a cotton wick, to be moulded into a small candle. This mode of using mercurial fumigation was introduced into practice by the late Professor Colles, and hence these candles are now familiarly known to us as "Colles' Candles." One of these may be attached to a common plate, and then burned under a curved glass funnel, which is to be raised about an inch from the plate. By conducting the process in this way we are certain that all the mercury is consumed, and the fumes are thus brought more gradually into contact with the diseased surface. This mode of treatment, when applied to the sound skin only, is seldom followed by ptyalism, but if it be directed upon an ulcerated surface it generally produces that effect; when applied to an ulcer in the throat, or in such a manner as to be *inhaled*, it will often excite a smart degree of salivation in three or four days; and we have seen ptyalism with extensive ulceration of the gums and tongue so unexpectedly established, although the greatest attention was paid with regard to the quantity used at each time, that we now seldom apply it to the throat, or in such a way that inhalation of the fumes can take place. It is, therefore, not improbable that a wholesale immersion in a mercurial bath might be followed by similar results, which no well-informed surgeon would wish, in the present day, to encounter in a broken-down patient, labouring under secondary syphilis.

On the Use and Abuse of Alcoholic Liquors in Health and Disease. Prize Essay. By William B. Carpenter, M. D., F. R. S., &c. &c. London, Gilpin. 1850. Royal 12mo. pp. 283.

Temperance and Total Abstinence; or, the Use and Abuse of Alcoholic Liquors in Health and Disease. By Spencer Thomson, M. D., &c. &c. London, John Churchill. 1850. Post 8vo. pp. 184.

Essay on the Use of Alcoholic Liquors in Health and Disease. By John Chadwick, M. D., &c. &c. London, Simpkin and Marshall. 1849. 12mo. pp. 123.

The medical history of alcoholic liquors, illustrating their properties and effects, "their uses and abuses," has long been a desideratum in the literature of our profession. This is the more to be regretted as abundant and valuable materials for a classic work upon the subject exist in the physiological and chemical writings of Prout, Liebig, Percy, and others, and in the various treatises on dietetics and materia medica. These, however, have been hitherto scattered leaves, no successful attempt having been made to bring them together. It was, therefore, with feelings of hope that this unoccupied corner of medical science was at length filled, that we saw before us so many essays emanating from members of the profession proposing to fix the basis on which alcoholic liquors are hereafter to rest.

On regarding, however, the reasons for publication assigned by the respective authors, we confess that we were somewhat discouraged to find that the above treatises were written in competition for a prize; not that we would, by any means, imply that such "præmia laudis," when emanating from learned societies, are not just incentives to diligence and honourable ambition; but that, in our opinion, the prudence of individuals whose bias is either known or may be conjectured, proposing prizes on doubtful subjects, is questionable. In such cases the suspicion *will* arise that it is not fair discussion which is sought, but an *ex parte* treatise; and if we find an essay, however valuable otherwise, in which the total abstinence principle is argued with the warmth of an advocate, honoured under peculiar circumstance with the prize, we feel that, however satisfied the donor may be with the award, the profession will never believe that the medical history of alcoholic liquors is thereby rendered an accomplished fact.

We learn from the prefaces to the different treatises that the origin of the temperance prize was as follows. In the beginning of January, 1848, a prize of 100 guineas was offered for the best essay "On the Use of Alcoholic Liquors in Health and Disease." The advertisement was signed, on behalf of the donor of the prize, a gentleman of the name of Eaton, by Messrs. Gilpin and Beggs, the latter of whom was secretary of a temperance society, and a writer of pamphlets in favour of total abstinence. It was stated that the essays must contain answers to certain questions which we may briefly describe as determining the effects of alcoholic liquors on the healthy human system; the evidence for their necessary use or the reverse, as articles of ordinary sustenance; the special modifications, if any, supposed to require them; and, lastly, their employment as medical agents. After stating some of the forms to be observed, the period of twelve months, according to Dr. Chadwick's account, was assigned for the composition of the essays, the 31st December, 1848, being the last day on which they could be received. In the second advertisement, issued in the month of April following, a repetition of the same was put forth, the only difference being the addition of the names of the adjudicators, viz., Dr. John Forbes, Dr. G. L. Roupell, and Dr. Guy; certainly distinguished names, but some of whom, at least, had pronounced in favour of the temperance movement. Several of the candidates, it would appear, sent in their manuscripts, and were patiently awaiting the result, when a new advertisement appeared, on December 21st, just ten days before the final day of delivery, postponing for nine months the period of adjudication, on the ground of sufficient publicity not having been given, and announcing to the candidates that their manuscripts would be returned if required. Now we cannot but consider that such an alteration as the above in the conditions of a prize, already twelve months announced, was a breach of contract, and that the writers who had sent in their essays at the time originally stipulated were unfairly treated. Two of the essayists, Dr. Spencer Thomson and Dr. Chadwick, declined to avail themselves of the permission, upon just grounds; the former stating that his medical avocations did not permit him to re-open the question, the latter withdrawing his essay altogether. Whether the essay of Dr. Carpenter, to which the prize was adjudged, had been sent in at the first-mentioned time, we cannot say, but it is curious that in the advertisement contained in his book, and which is dated April, 1848, the 30th day of September, 1849, is substituted, without explanation, for the time originally specified. If it had not, Dr. Spencer

Thomson, to whom the second place was assigned, has still stronger grounds for dissatisfaction at a postponement which deprived him of the well-earned reward of his labours.

Not wishing to occupy the time of our readers with any farther comment upon the history of the temperance prize, we shall proceed to lay before them a short analysis of the published essays, and shall follow the divisions of the subject as proposed by the donor: to this the writers have adhered, though the respective questions have received different degrees of consideration.

The first question is,

What are the effects, corporeal and mental, of alcoholic liquors upon the healthy human system?

In discussing this question it is of importance, first, to ascertain to what class of agents alcoholic liquors are to be referred; and accordingly we find that, in the three works, they are regarded, in accordance with the commonly received view, as general stimulants. We find, however, that some difference of opinion upon their degree of action as such exists. Thus, Dr. Thomson classes them under the head of extraordinary or occasional stimuli, which he defines to be "such as generally produce a certain amount of temporary exalted action, either of body or mind, or of both, not only without actual injury, but with positive benefit." These extraordinary stimuli differ from the class of ordinary stimuli in this, that "the regular, unceasing action of the latter is necessary for the preservation of sound health, both of body and mind," while the former, though beneficial when moderately used, are not essential to mental or bodily health. Without stopping to criticize this division, we come to his third class, which he calls, rather vaguely, "superfluous stimuli," but which, in our opinion, would be better called abused stimuli, as they comprehend not merely the former classes when enjoyed more than enough, but when their ill use has turned to positive detriment. From Dr. Thomson's opinion that these agents, when used temperately, are able to produce a temporary increase of power in the system, attended with benefit, he would appear to regard them in such cases as coming under the head of tonics. Dr. Carpenter disbelieves that they *ever* have tonic effects; but we confess that we are not convinced by his mode of reasoning upon this subject. From the effects of alcohol, when applied in a more or less diluted form to the web of a frog's foot, he argues that corresponding conditions occur in the human stomach from the ingestion of alcoholic liquors. As these, "when applied to the living tissues in a sufficiently dilute form, exalt for a time their

vital activity, to be followed, however, by corresponding depression," he observes, "that we are justified in regarding alcohol as belonging to the class of *stimulants*, and as subject to the laws of their operation." He proceeds, however, to observe that "when alcohol, in a state of sufficient concentration to act more potentially," is applied to the frog's foot or the human stomach, "its depressing effect is manifested *without any previous stage of excitement*." Now we doubt that if alcohol in a concentrated form and a large dose be capable, as it is proved to be, of suddenly lowering and even extinguishing the *vis vitæ*, it is correct in such a case to call it a stimulant. It certainly gives us rather a vague notion of a stimulant to define it to be an agent which sometimes depresses without stimulating. On the other hand, as it would appear from the experiment on the frog's foot that depression always ensues upon stimulation, and as wine and other alcoholic liquors are frequently given in fever without any such depression being visible even to the eye of a total abstainer, Dr. Carpenter comes to the conclusion, apparently, that alcohol is, in such circumstances, no stimulant at all; for it is plain that it does not depress, or the depressing effects of the fever would be increased, to the extinction of life; and it does not, according to his views, stimulate, for "there is an entire absence of stimulating effects." A stimulating agent which neither stimulates nor depresses is certainly a novelty in therapeutics, if not in nature. The truth seems to be that Dr. Carpenter, in his anxiety to deny that any, even the mildest form of alcoholic liquor, may, under certain circumstances, exercise upon the system a *tonic* effect, loses sight of the fact that alcohol, like other agents, at suitable times, often acts *relatively*. When used in small quantities by persons in ordinary health and after, say, a dinner of animal food, it is not as yet disproved that it may, especially when aided by the sparkle of wit and the smile of good humour, act with tonic effect; at least if the rule applied to stimulants, of being followed always by depression, hold good; as such an effect, if at all occurring, is too slight to be apparent. When the bounds of moderation are passed, then alcohol becomes a true stimulant, its exciting effects being followed by a corresponding depression. In still larger quantities it approximates to a new class of agents, the tendency to sleep and lethargy which follows inducing a resemblance to those substances belonging to the class of narcotics. Finally, in a highly concentrated form and large amount, alcohol acts as an acro-narcotic poison, "which tasted slays all senses with the heart," coma and death following it after a variable period of time.

The arguments adduced for the purpose of determining the influence of alcoholic liquors in causing disorder or lesion of the healthy human system are drawn from sources which possess various degrees of weight. These are, first, the effects produced by alcohol upon dead tissues and fluids. Secondly, experiments on animals. Thirdly, observation of the symptoms during life and the appearances on dissection in cases, where death was either immediately or remotely imputable to alcoholic liquors. Fourthly, the actual pathological effects produced by alcohol upon the human stomach during life, as witnessed and described by Dr. Beaumont in the case of St. Martin. It must be recollected that all these arguments bear testimony only to the abuse of alcoholic liquors; but they are employed by teetotallers as *quam proxime* applicable to their moderate use when prolonged. Whether we can argue similarly from the injurious effects arising from other stimuli more familiar to man, such as heat and cold, light and electricity, when augmented beyond endurance, to a negation of their beneficial results in the ordinary course of nature, we must leave to them to decide.

In reference to the first class of arguments, viz., "the influence of alcohol on the physical, chemical, and vital properties of the animal tissues and fluids," we think objections may be fairly made, when it is recollected that the principle of life so modifies the effects of agents, that contradictory results sometimes accrue from the action of the same substances upon the dead and living tissues. To give an example:—alcohol is justly described by our authors as exercising an astringent and corrugating influence upon the softer tissues placed in it after death; but if from this we should conclude that the use, or abuse, of alcoholic liquors, always corrugates and hardens the human stomach while living, we shall be in error, as the results of dissection show it to be in a softened state. Again, if a portion of the brain be kept for a time in alcohol, it is hardened and whitened; and, probably misled by this fact, Dr. Carpenter states, that the appearance of "the substance of the brain after death from alcohol is unusually white and firm, *as if it had lain in alcohol for an hour or two.*" This statement is certainly not borne out by the authority of Dr. Ogston, to whom he refers. We have examined his interesting paper, published in the fortieth volume of the Edinburgh Journal, and we find that, as we were prepared from our own experience to expect, the brain is described as firm, but in every case dotted in its interior with blood. "We find," says Dr. Ogston, "dark blood in the veins and sinuses, or even in the

substance of the brain." This may seem hypercritical, but it is necessary to notice it, as this supposed change in the physical qualities of the brain serves Dr. Carpenter as a foundation for one of his theoretical deductions. Thus, in commenting on the circumstance of alcohol having been found after death caused by it, in greater relative abundance in the brain than in the blood, he concludes that "this fact is one of fundamental importance, as showing us how directly and immediately the whole nutrition and vital activity of the nervous system must be affected by the presence of alcohol in the blood; the alcohol being thus specially drawn out of the circulating current by the nervous matter, and incorporated with its substance in such a manner *as even to change* (*when in sufficient amount*) *its physical as well as its chemical properties.*" This whitening, therefore, of the cerebral substance, from the astringent effect of the incorporated alcohol upon its vascular tissue, does not exist except in the imagination of Dr. Carpenter.

Another circumstance on which he reposes much faith is the chemical effect of alcohol upon soluble albumen in effecting its coagulation, and thence the vital effect upon "the solidifiability" of the fibrine. Thus, he states "that some such physical change (meaning coagulation) must always take place in the walls of the stomach whenever alcoholic fluids are introduced into it; and in the soft tissues of the body at large wherever alcohol has found its way into the current of the circulation." But, it may be inquired, why does not alcohol coagulate the blood on mingling with it? like the poison—

> "Whose effect
> Holds such an enmity with blood of man,
> That, swift as quicksilver, it courses through
> The natural gates and alleys of the body;
> And with a sudden vigour it doth posset
> And curd, like eager droppings into milk,
> The thin and wholesome blood."

To this it is replied, that "although it will rarely, if ever, be introduced into the mass of the blood, by any *ordinary* alcoholic potations in a sufficiently concentrated state to effect this, yet we should anticipate that its presence, even in a very dilute form, *must* affect the chemical relations of albumen, and can scarcely do otherwise than retard that peculiar transformation, by which it is converted into the more *vitalized* substance, fibrine." We find that the grounds for this anticipation are that "when an animal has been killed by the injection of alcohol into the blood-vessels, the blood often remains fluid after death, or coagulates but imperfectly. Now there cer-

tainly is a difference between the effects of an alcoholic liquor introduced into the stomach "in ordinary potations," and the same when injected directly into the blood-vessels; and it seems an inconclusive mode of reasoning to infer that, because the coagulable principle in the blood is impaired in animals dying from the latter cause, a similar result should take place in every instance where alcoholic liquors have been indulged in beyond prudential bounds. The blood, no doubt, is constantly varying in its relative composition throughout the day; still we should expect to find as good a coagulum after a dinner followed by a few glasses of wine, or even a greater amount, as there had been some hours previously. Allowing that in death from intoxication the alcohol passes into the circulation unchanged, and is there decomposed (though, if decomposed, how is it that it has been separated from the blood in its compound state?)—allowing this, a better explanation for the fluidity of the blood can be offered than the retardation of the process of fibrination by the chemical alteration effected on the albumen. This is the influence of carbonic acid when existing in great excess in the blood, and this excess may arise either from the lessened elimination of it by the lungs, as noticed by Dr. Prout to occur in alcoholic poisoning, or, according to Liebig, from the conversion of the oxygen in the arterial blood into carbonic acid, by its affinity for the carbon of the alcohol. Dr. Carpenter states further, that "as it is probable that nearly all the organized tissues are developed at the expense of the fibrine, anything which impaires its organizibility must have an injurious influence upon the general nutritive operations;" for a proof of which he refers to the case of habitual drunkards, in whom "the imperfect elaboration of the fibrine is one of the special characteristics." Without dwelling upon the opinion at present held by some, that fibrine, so far from being essential to the development of the tissues, is to be regarded as an excrementitious product, derived from the waste in the system and in progress of elimination from it, we may doubt the correctness of the above statement, as far as malt liquors are concerned, the sizy blood of persons using them in excess having been frequently observed.

The experiments made upon animals give us more satisfactory results as to the effects of alcoholic liquors than the arguments deduced from their influence on dead tissues, but still it must be recollected that in these instances alcohol has been given in a concentrated form. Dr. Percy's experiments have afforded some interesting information upon this subject. He injected more than two ounces of alcohol into the stomach of a

dog, and death ensuing in less than two minutes, the spirit was found both in the blood and the brain. The same conclusion was arrived at by MM. Bouchardat and Sandras, who detected it in the veins of the stomach. The imbibition of alcohol by these veins, and its transference through the system by the blood, was also proved by the experiments of Magendie; and his celebrated investigations into the mode of operation of poisons show that, by cutting off the communication with the current of the circulation by tying the connecting vein, the effects of the poison could be postponed. Still a doubt exists whether the absorption of alcohol could be sufficiently rapid to account for the instantaneous effects. "Scarcely," says Dr. Percy, "was the injection completed, when the animal uttered a loud, plaintive cry, and fell lifeless to the ground. Never did I see every spark of vitality more effectually and more instantaneously extinguished." In this case we must suppose that the poison could not enter the veins, pass through the heart and lungs, and be deposited by the circulation upon the nervous centres, in the incredibly short interval which occurred; and pathologists seek another *modus operandi* in the special action of alcohol upon the organs of innervation. "In such instances," observes Dr. Carpenter, "the fatal result would seem rather due to the violent impression made upon the gastric nerves, especially those of the sympathetic system, whereby the heart's action is suspended, and death takes place by syncope rather than by asphyxia." It is not improbable that it may act in both ways, viz., when highly concentrated, upon the nerves, without the intervention of the blood, and this either upon the sympathetic system, or the sensorium, or both; and when in a less concentrated form, it is probable that it acts upon the brain by being first absorbed into the blood. But whether, in all cases, alcoholic liquors directly enter the blood or not, is not as yet determined; thus these agents are more rapidly taken into the circulation after a lengthened fast than after a full meal. Whether what Dr. Paris says of wine and fermented liquors be true, we are not able to say, viz., that they combine with the soluble albumen, and in this state undergo the digestive process. Certainly the form of combination of the spirit with the various constituents of these liquors exercises a great effect on their mode of action. For example, "brisk and sparkling wines, like champagne, intoxicate sooner than dry wines containing a larger proportion of alcohol, from the spirit being intimately combined with the carbonic acid, and rising with that gas;" but this intoxication is transient from the small amount of alcohol. It requires, on the other hand, a large amount of

beer to produce inebriety, from the nature of its ingredients, but the intoxication produced by it is of long duration, in consequence of its being more slowly carried out of the system.

The phenomena of alcoholic intoxication, and the *post mortem* appearances resulting from it, afford useful criteria of the effects of spirituous liquors, Dr. Carpenter divides these phenomena into three stages, all of which he asserts are states of poisoning! We have heard that the eccentric Dean Swift was in the habit of labelling certain bottles in his library in accordance with this opinion; for instance, porter would be marked "poison," wine, "rank poison," and brandy, "deadly poison"; but, notwithstanding this caution against their internal use, the humorous Dean found it quite inefficient, such is the waywardness of human nature, as a means of deterring his servants from draining their lethal contents. It would, no doubt, not a little alarm many a convivial circle, after the first bottle had completed its circuit, to hear from Dr. Carpenter the melancholy sentence that they were all poisoned; and it would certainly not quell the first feeling of shock which such disastrous intelligence would convey, to be told that the poison had begun its work, and that they were fast verging "to the incipient stage of insanity!" How it happens that the unconscious votary is not aware of his state, or how the world, censorious as it is, refrains from branding as a madman every one who does not totally abstain from this poison, is only a sad proof of the degeneracy of the age:

> "Nimirum insanus paucis videatur, eo quod
> Maxima pars hominum morbo jactatur eodem."

With respect to the state of the stomach during life, when acted on by alcoholic liquors, the well-known example of St. Martin is adduced, that famous "*Deus ex machina*," to whom lecturers on teetotalism are so much indebted. The appearance presented by his stomach after a debauch is narrated usually with the most minute detail, and in temperance lecture-rooms drawings are exhibited with the lining membrane of the stomach depicted in all the terrors of paint; "livid spots," and "aphthous patches," and "grumous blood," being scattered over it in a spirit of pictorial profusion. We are told there that "the free use of ardent spirit, wine, beer, or any intoxicating liquor, when continued for some days, has invariably produced these morbid changes." Now we confess that we very much agree with the sensible observations of Dr. Spencer Thomson upon this case, and we believe with him that if the appearances are described by Dr. Beaumont with fidelity they would

be apt to mislead, "as they are in truth more intense than those which are stated to have been presented after poisoning by alcohol in a concentrated form;" besides, the same appearances were seen after a voracious meal, especially if coarsely masticated. We cannot, therefore, allow that such morbid changes as were visible to Dr. Beaumont in St. Martin's case were of such danger as his vivid description would lead us to imagine, for after a few days' abstinence and rest, the stomach again resumed its healthy aspect.

As we are no friends to the abuse of alcoholic liquors, or to the sad power which intemperance, when habitual, possesses, of kindling disease, we shall, as our space is very limited, refer our readers to the long catalogue of maladies which the essayists trace to this origin, glancing merely at some of the statements; we do this with less hesitation as there are few special diseases in the nosology of intemperance, though there are many general diseases which it, with other causes, helps to originate.

One painfully interesting form of disease attributable to the abuse of alcoholic liquors, well known to the psychologist, but seldom described in works on medicine, is that species of insanity to which Hufeland gave the appropriate name of dipsomania, or thirst-madness, from the irresistible craving for stimulating drinks. Dr. Carpenter gives a long and valuable description of this disease from the pen of Dr. Hutcheson, who has, however, in our opinion, injudiciously changed its name to oinomania, or wine-madness. When once seen this disease will never be forgotten. The craving appetite for stimulating liquor is so intense, that there is no expedient to which recourse will not be had to quench the raging thirst. The unhappy victim knows that it is criminal to yield to the temptation, but unable to resist the gratification of his insane desires, he drinks again and again, each draught only increasing the relish for more. If denied the intoxicating cup, every sacrifice will be made to procure it; he cares little for falsehood or deceit, for the wants of his family, or the risk of his reputation; he is in fact no longer a responsible being; and for the errors he commits, and of which afterwards, "when in his right mind," he bitterly repents, he deserves pity more than blame. An interesting case of this kind is given by Dr. Chadwick, from Prichard's Work on Insanity. The only cure for this disease is abstinence and seclusion; and, from the continued tendency to relapse, Dr. Hutcheson has justly remarked, that such individuals are sane only when confined in an asylum.

In his anxiety to connect intemperance with insanity, as

cause and effect, Dr. Carpenter devotes a section to prove that drunkenness in a parent tends to produce idiocy or insanity in the offspring. This, as a rule, we consider very questionable. We believe it possible that the male parent, if an habitual drunkard, may procreate an offspring of feeble bodily power, or that the same result may ensue from the impaired nutritive energy of the female parent during gestation; but, except that a feeble mind may attend an impoverished body from arrest of development, we want indisputable evidence that idiots are generated by intemperate parents more frequently than by parents sound in body and mind. We believe the desire to prove that, to use the words of Horace, "fortes creantur fortibus et bonis," has led to the opinion that the opposite also holds true, but in real life we often find the first a poetic fiction. How drunkenness, an acquired habit, can be propagated by descent, is as difficult to explain as its non-occurrence in the offspring would be if the drunkard became a teetotaller. We opine that more depends on domestic example than hereditary taint. Still more improbable is the impression countenanced by Dr. Carpenter, that idiocy is particularly liable to occur when one or both parents are intoxicated at the time of the procreation of the offspring. How this can be known is not stated, and we should suspect it to be rather difficult of proof. If such a formula were to hold good we fear that mental debility would be much more frequent than it is.

Having thus passed in review some of the evils arising from the *abuse* of spirituous liquors, we have now to see whether we can reverse the picture and discover any good connected with their *use*.

This brings us to the second question.

Does physiology or experience teach us that alcoholic liquors should form part of the ordinary sustenance of man, particularly under circumstances of exposure to severe labour or to extremes of temperature?—Or, on the other hand, is there reason for believing that such use of them is not sanctioned by the principles of science or the results of practical observation?

This question appears to us sophistical. If it means, "Are alcoholic liquors so indispensable to human life that a healthy man cannot subsist without their daily use?" we must assuredly reply that, like most articles of aliment, they are not. But if the question implies that both physiology and experience show that such liquors should not in any case form part of the ordinary sustenance of man, leading, as he does, an artificial life, then the temperate user and the total abstainer join issue, both appealing for confirmation to the same sources. One of the

cases supposed to require the use of these liquors is when the individual is obliged to undergo severe bodily exertion. Now this may be two-fold, either when some extraordinary temporary effort of the animal powers is demanded, especially at a time when the system is almost exhausted by fatigue,—in this it is allowed by all that no other stimulus can take the place of these liquors; or, secondly, when an amount of labour is required from day to day of such an extreme character as to strain the bodily energies to the utmost. In this latter case it is maintained that total abstinence succeeds better than the use of alcoholic stimulants in any form. As Dr. Carpenter is the expounder, *par excellence*, of the arguments on the abstinence side, we shall give a short summary of the physiological positions maintained by him as contravening their use in supporting the system under "sustained" exertion.

Bodily labour, being performed by means of the muscular system, which is brought into operation by the nervous, cannot be long or successfully maintained without *both* these systems being supplied with nutritive matter to repair their loss and support increasing demands. The question, therefore, arises, can alcoholic liquors contribute to meet the demand? Dr. Carpenter looks to the ultimate composition of these liquors, and seeing no relation of composition between alcohol and muscular tissue, none of the albuminous materials which form the pabulum of the latter deriving their origin from the elements of alcohol, he concludes that in this system the alimentary influence of alcohol is nil. Now granting that this theory may be sustained, and that these liquors can supply no nitrogenous ingredient to the muscular tissue, though this is not wholly true of some of them, what does it prove beyond what common sense will admit, viz., that these liquors cannot take the place of ordinary food, no more than Dr. Carpenter's favourite beverages? "We cannot," proceeds Dr. Carpenter, "speak with the same confidence in regard to the impossibility of any assistance being afforded by alcohol to the nutrition of the nervous system," as carbon is a predominant principle in this part of the body, and alcohol approaches the oils and fats in its chemical relations. He seeks, however, to extricate himself from the difficulty by asserting that as a better and less noxious mode of effecting the nutrition of the nervous system by fatty matters exists, nature would do wrong to use a defective, degrading, and poisonous compound in their stead. It would appear that Dr. Carpenter mistakes this assumption for proof, as he looks on it as decisive. But though it may have some show of probability as applying to the use of

alcohol in large quantities, it fails in its application to the milder forms used temperately. As well might we argue against the use of food containing phosphorus in union with other elements, and which is so important an element in nervous tissue, because, if present in the blood in an undiluted form, or in excess of quantity, it may exercise a deleterious effect as a poison.

We cannot clearly make out what are Dr. Carpenter's precise notions upon the relations of alcohol to nervous matter, for he states in another place that "it seeks out nervous matter and fastens itself upon it," while he denies in the present chapter that though analogous to it in its chemical components, it supplies material for its nutrition. Again, we are told that it stimulates particularly the nervous system, so that a greater amount of nervous energy is produced, and a greater amount of muscular power called forth, than could be generated without its aid. But he does not explain how this is effected more than generally that the increase of nervous power is accompanied by a corresponding disintegration of nervous matter, which requires rest and food to recruit its over-exerted energy. Of course if the stimulus employed be great, the period of depression and renovation must be the more prolonged; but if the stimulus is small, such as the moderate use of the milder alcoholic liquors, combined with the necessary aliment and rest, the artificial stimulation is less permanently injurious. We say less injurious, because all forcing work beyond the natural powers must end, whether stimulants be used or not, in premature decay; and as this unnatural and excessive labour must require *some* artificial support, it becomes a question for experience whether ginger beer and temperance cordials sustain the body under severe and prolonged muscular exertion better than the glass of malt liquor which the teetotaller would deny to the exhausted labourer.

In appealing to practical experience, allusion is made, among other examples, to the porters and boatmen of Constantinople, whose strength and physical development, it is said, very far surpass those of the corresponding classes in England, though the former are water drinkers and the latter drink ale. We believe, notwithstanding, that if it came to a trial of strength our countrymen, whether English or Irish, would meet them as vigorously as our grog-drinking seamen beat them at Navarino. We may observe, further, that the examples given in Dr. Carpenter's book do not carry conviction to our minds. Teetotallers are rather fond of pitting themselves on paper against the grog

drinkers, always, of course, to the disadvantage of the latter. It is to be recollected, however, that it is they themselves who furnish the statistics.

In the observations we have made we have no desire to undervalue the good effects of total abstinence to the miserable victims of intemperance. We agree fully in the declaration that with the drunkard no half measures will succeed; it must be "abstain, or die." But we also agree with Dr. Carpenter that "if the whole world would be really temperate in the use of fermented liquors there would be no use of total abstinence societies." But, as in all things in this life, good is dashed with evil, so we find it with temperance societies. These have, with some advantages, many faults, and the greatest of all is that religion, the only sure foundation of vital reform, is not the protecting influence. Hence, while these societies correct a vicious habit, they fail in elevating the moral feelings, and thus their effects are transient. They do not make the drunkard more domestic, as instead of his home, the club and the music room are his haunts. No sooner does a man become a total abstainer than he thinks it necessary to set himself up above his fellow-men, and condemn them because they do not, like himself, pledge themselves against that moderate use which he, not they, violated. The same spirit of intolerance too often pervades even the well-meaning but injudicious advocates of the cause. Because "they are virtuous, there are to be no more cakes and ale." Let them proceed, and we heartily wish them success in their philanthropic labours; but we cannot approve when they use sophistry instead of truth, and impute unworthy motives and call hard names to those who, instead of joining their ranks, continue to use the gifts of God without abusing them.

We have not time to dwell upon the influence of alcoholic liquors in exciting the mental operations, or to examine the opinion current among the ancients, "that no verses writen by water drinkers could please." Poetry and eloquence have long been said to be under vinous influence:

"Fæcundi calices quem non fecere disertum."

Dr. Carpenter allows that these liquors excite the activity of the *creating* and *combining* powers, though he doubts their stimulating effects upon that combination of the intellectual powers which is known as *talent*. Among the men, "who extended most widely the domain of human knowledge by their intellectual labour," we find that the name of Dr. Johnson is placed as a water drinker. This, however, is a mistake, for

Boswell states that Johnson could practise abstinence, but not temperance.

There is but one subject more under this head to which we can allude, as we have not time to discuss the power of alcohol in enabling the body to resist the depressing influences of cold and heat. This we the less regret, as Dr. Carpenter observes that its power in the former of these cases, "is, perhaps, the best established of all its attributes." The subject to which we allude is the question, whether a person habitually temperate or a total abstainer can best escape epidemic diseases or other morbific influences? This is a point not yet sufficiently examined. Dr. Carpenter cites as an example that "the nurses of the cholera hospital in Manchester were worked six hours and allowed to go home the other six," and that the consequence was a large mortality, which he ascribes to the free use of alcoholic liquors. On confining them to the hospital, and putting them upon a short allowance of drink, not a single fresh case occurred. In our opinion, besides the regularity of habit thus induced, another cause may be assigned, viz., the confinement to the house, as we have frequently seen it to occur that persons coming from the fresh air within the range of cholera were more liable to take the disease than those who were continually breathing its atmosphere. In one of the largest cholera hospitals in the south of Ireland it was found expedient to allow the nurses and their assistants, amounting altogether, with laundresses and others, to over forty, a pint of porter each daily, and no instance, during two months' duration of the epidemic, occurred of any of them taking the disease.

Again, Dr. Carpenter has given statistics of the Cameronian regiment, when in India in 1837 and 1838, which would imply that its exemption from endemic and other diseases was in a direct ratio to its temperance compared with other regiments; but he has not stated that, subsequently to that period, when the same regiment was in China, it was unable to resist the malarious influence of the climate, and lost many hundreds of its men. When this regiment was in Cork, in 1849, it suffered severely from cholera; and it was ascertained, on inquiry, that the disease made no distinction between the abstemious and the intemperate. With respect to the tolerance of disease, our experience does not preponderate to the side of the teetotaller over the temperate man, though it does over the drunkard. Indeed the weight of evidence inclines to the opinion that total abstainers bear fevers badly, at least in this country, not enduring depletion, and requiring stimulants at an early period. In other countries, it has been stated that Irish emigrants who

were teetotallers were among the first to fall a sacrifice to malarious agencies.

The third question proposed for consideration is—

Are there any special modifications of the bodily or mental condition of man, short of actual disease, in which the occasional or habitual use of alcoholic liquors may be necessary or beneficial?

This question is answered by the essayists in the affirmative, and various conditions of mind and body are assigned, in which recourse can be had to alcoholic liquors with advantage. Among these we find cases where a demand for some extraordinary exertion is required, and must be met at any risk: these cases we have already alluded to. In circumstances also where the body is exposed to cold and damp, and great depression is experienced, the moderate use of fermented liquors fortifies the system, so as to enable it to resist those debilitating atmospheric changes, which might otherwise produce acute disease. A still more important case is, when a deficiency of ordinary sustenance exists; then a little portion of some alcoholic liquor supports the frame under labour and privation better than anything else. Examples, illustrating these "exceptional" cases, occur in the pages of the several essayists, and are well worth perusal. But the most interesting question for the physician is, what are the states of mind or body, short of actual disease, which occur in his practice, in which a moderate use of fermented liquors may be beneficial. One of these occurs every day in city life. If all mankind could live in pure air, use wholesome and simple food, and avoid the noise and warfare of crowded cities,—"fumum et opes, strepitumque Romæ,"—or if even they could, when needed, relax the jaded body, and rest the wearied mind, we should have little necessity for daily stimulants. But seeing that men form portions of civilized communities, exposed to countless wearing influences, the question is how to enable the frame to abide the shock. Dr. Carpenter sees the evil, but his remedy is Utopian. How could the daily labourer or humble artisan change the impure atmosphere in which he lives, for the renovating mountain breeze? How could the professional man in his struggle for position, or the merchant in his speculations for money, quit without loss the busy scene in quest of health? These are the cases in which the moderate stimulus of alcoholic liquors enables the citizen to bear up under the surrounding depressing agencies, and, by assisting his digestive powers, keeps him at least in average vigour and health. In persons of strumous constitution, such as we find in large manufacturing towns, the good effects of the moderate use of alcoholic liquors are acknow-

ledged. Children with the lax fibre and tumid glands of scrofula soon improve when fermented liquors form a part of their regimen; the gastric juice, which is deficient in these cases, is increased so as to help the stomach to digest the food, thus pouring better blood into the veins, and giving tone to the whole system.

Cases generally supposed to require the aid of these liquors are the states of pregnancy and lactation, in which, by one digestive apparatus, two beings are to be supported. In both these instances, we admit that stimulants, both of food and drink, are used in greater quantity than is required; but still, looking to the almost universal employment of alcoholic liquors in these cases, we protest that we have not seen the melancholy train of disasters to the mother and child which Dr. Carpenter theoretically conceives to follow from their use. Ladies living in cities *will* nurse their children, and if the remonstrances of the physician are unable to prevent this, is it not his duty to employ the best means in his power to correct the effects of too great a drain on the system? Dr. Carpenter with much naïveté, advises the physician, when the period of nursing is complete, to break a habit which might become vicious, by substituting a medicine for a beverage, "giving to the alcoholic compound such a form (he does not say what) as may render it not peculiarly palatable or inviting."

The only other condition considered to justify the use of fermented liquors, to which we can allude, is old age, that state of enfeebled energy, when

> —"Minimus gelido jam in corpore sanguis
> Febre calet solâ."

Even here, where the universal consent of mankind allows a little wine "for the stomach's sake, and the many infirmities," Dr. Carpenter gives it grudgingly. He forgets his own theory of its effects in maintaining the animal heat when feeble, and tells us his fear that it makes the old eat more than they ought! There is nothing, after all, like a hobby. "Allez donc," Dr. Carpenter, "allez donc toujours votre train." Perish rather the old, than that you should change your opinions, and afford a triumph to the opponents of the hydropathic and total abstinence cause!

There remains now but the fourth question to occupy us viz.

Is the employment of alcoholic liquors necessary in the practice of medicine? If so, in what diseases, or in what forms and stages of disease, is the use of them necessary or beneficial?

This most important section to the physician is unfortunately the one which receives the least consideration in the several Essays. Yet it causes much disagreement in the total abstinence ranks. Some of them hold that alcoholic liquors, being poisons, are injurious, or at least not necessary, in disease; and they take on themselves a solemn responsibility in administering a pledge to refrain from their medicinal use. Yet there is no point in medicine better attested than the value of these stimulants in preserving human life, so that they hold a place in therapeutics which no other agent can rival. It would be tedious to enumerate all the diseases in which their use may become necessary, in some indispensable; but in no malady is the indication for the use of these stimulants so vitally important as in certain Epidemics of fever. In this country we possess sad evidence of their indisputable value. In the fearful epidemic fever which accompanied the famine of 1846 and 1847, and swept over the length and breadth of this country with appalling extent and fatality, the universal conclusion arrived at by the hundreds of physicians who treated it, and who have recorded their opinions in the pages of our volumes for last year, was, that alcoholic stimulants were invaluable. Often a patient who had a short time before appeared out of danger, was found in a state of sudden collapse, pallid, cold, and pulseless, and nothing but the unceasing administration of alcoholic stimulants could bring back the fast-ebbing powers of life. The heart's action had begun to fail, and a short delay in the administration of these stimulants would have arrested it irrecoverably. Dr. Carpenter alludes to similar circumstances in the epidemic fever in Edinburgh, in 1836; and contrasts the different results in the practice of two of the physicians whose clinique he attended, inclining largely in favour of the stimulant plan. In explaining the effects of wine, he agrees with the deductions of Dr. Stokes that the failure of the heart's action indicated by diminished impulse and extinction or diminution of the first sound, is a valuable guide for the use of wine. In the late epidemic, the necessity for this remedy did not cease with the fever; it had to be kept up in smaller quantity during convalescence, owing to the exhausted state of the patient, and the tendency to relapse, or to fall into some cachectic disease. In these cases we cannot admit the explanation given by Dr. Carpenter of the mode of action of wine, viz., that it acts merely as a heat-producing agent, its alcohol supplying carbonaceous matter rapidly, so that it is burned off nearly as fast as it is introduced. This is, in our opinion, but a part of its effects; we see others equally impor-

tant in the nutrition or sustentation of the nervous system, as evinced in the calming effect produced on the sensorium, the cessation of delirium, the appeasing of the irregular muscular tremors, and the imparting new vigour to the failing action of the heart and respiratory muscles. It is equally valuable in rousing the system from the depression of the vital powers produced by severe personal injuries, as large burns, gun-shot wounds, capital operations, &c., in which the shock is so sudden and overwhelming, that, without aid, the system has no reactive power. Here the effects are too rapid to be explained merely by the combustion of carbon, and the fatty matters of the body have not been "used up," as may be true in fever. In diseases attended with a drain on the blood either directly, as in exhausting hemorrhages, especially uterine, or indirectly, by excessive secretion, its renovating and stimulating influence is equally valuable. In many chronic diseases, too numerous to mention, notwithstanding Dr. Carpenter's manifest leaning to the hydropathic treatment, there is incontestable evidence in its favour.

We have now reached the conclusion of our task, and we wish, once for all, to observe, that the strictures we have thought it our duty to make are not directed against total abstinence itself, which we hold to be necessary in habitual intemperance, but against the egregious pretensions of some of its advocates. We believe that they who possess sufficient self-control to be temperate have no need to be abstinent, and that the only rule imperative on man is

> "The rule of not too much, by temperance taught
> In what he eats or drinks, seeking from thence
> Due nourishment, not gluttonous delight."

But as human nature is fallible and weak, and too many fall victims to the debasing vice of intemperance, we are ready to bestow our feeble meed of praise on those who strive to raise a fallen brother, and whose intentions we honour, while we may not coincide with their mode of carrying them into operation. We are ready to give them full credit for sincerity in their opinions, and we claim the like for our brother-recusants. The non-abstaining physician, in particular, is roundly charged with stifling his convictions from their not squaring with his interests, and threatened with the loss of his patients' confidence, if he continue to recommend, however conscientiously, the use of alcoholic liquors, in ignorance or defiance of the enlightened spirit of the age.

Of the three Essays before us, we have much pleasure in

stating, that they contain a large fund of valuable materials. They all, however, in our estimation, err in taking a partial view of this interesting question. Dr. Chadwick's treatise is short but practical; we do not, however, agree with him, that the true action of alcoholic liquors is unknown to a vast number of the profession. Dr. Spencer Thomson has handled his subject with ability and fairness, inclining evidently to the side of abstinence, though not condemning the temperate use of alcoholic liquors, even in the social circle. We could wish that the headings of his chapters were a little more intelligible. To many points of Dr. Carpenter's elaborate, but certainly one-sided Essay, we have already stated our objections. He has shown much learning and research in discussing his subject, as he always does; but the tone of his work conveys the impression that it was written more for victory to a favourite cause, than a dispassionate balancing of conflicting opinions. His Essay is an extension of an article on the same subject, which caused some sensation as appearing in the last Number of the British and Foreign Medical Review, and advocating heterodox opinions. We regret very much to find that he has again judged it prudent to represent hydropathy as possessing superior claims to medicine in the treatment of chronic disease. He is equally zealous in maintaining the merit of teetotalism over even the most moderate use of alcoholic liquors. We would recommend to him, when he next returns to this subject, the advice of Gil Blas: "Avouez de bonne grâce que vous avez reconnu votre erreur, et que le vin n'est pas une funeste liqueur, comme vous l'avez avancé dans vos ouvrages, pourvu qu'on n'en boive qu'avec modération."

Pathological Researches on Death from Suffocation and Syncope, and on Vital and Post Mortem Burning, suggested by the Case of the alleged Bridgenorth Matricide. By SAMUEL WRIGHT, M.D., LL.D., Professor in Queen's College, Birmingham, &c. London, Churchill. 1850. Small 4to, pp. 34.

THE observations and reflections contained in the present tract have been suggested by a remarkable case, involving important medico-legal questions, which formed the subject of several (it is said nine!) coroner's inquests, and of no less than three criminal trials. The case we allude to is that of Mercy Catherine Newton, reported in an abridged form in the Medical Times of August 18, 1849. With a view to the adjudication of cases of unusual complexity or importance, it has

been long the custom of those charged with the practical arrangement of criminal justice, to invoke the aid of the more experienced members of our profession. The special *quality* of experience, however, which such cases demand for their elucidation, is not unusually altogether misunderstood, as is shown by the identification of curative with medico-legal knowledge, so commonly observed on the part both of the public and of the administrators of the law. Thus, if the solution of a question of wounding, strangulation, or the simulatory effects of putrefaction, be demanded, the opinions of the surgeon and anatomist are viewed as indispensable, notwithstanding that inexperience in legal medicine may, and often does, render the testimony of such persons (highly to be esteemed in their respective spheres) worse than useless, by constituting them dangerous alike to the interests of justice and the safety of the accused. In the investigation, however, of the case of Newton, above alluded to, the authorities have evinced a sound discretion in selecting, for the collation and interpretation(*a*) of the medical facts, a physician distinguished at once as a physiologist, practitioner, and medical jurist, and whose present communication contains matter both novel and important.

We cannot give more than a brief analysis of the author's results, which are stated in connexion with the leading subjects of inquiry at the trial,—a passing allusion to which is here necessary. The body of the subject of the supposed violence was discovered lying in an out-house, a few yards from the kitchen door, and was supposed to have been dead two or three hours. Externally there were extensive burns (chiefly on the anterior surface of the body), not indicative of vital reaction, and accompanied by a solitary vesication *believed* to have contained serum. The brain was congested, the lungs excessively so, dark and spumous wherever incised, and the right cavities of the heart replete with dark, semi-coagulated blood. The deceased was reported to have been in her usual good health three or four hours previously to the discovery of the body. The questions involved were:—First, what was the cause of death? Second, were the burns vital or cadaveric? The view sought to be established by counsel was, that death had resulted from burning, or from the inhalation of the gas-products of combustion. Dr. Wright, on the contrary, was of opinion, that it had been the consequence of suffocation (smothering?), and that the burning had occurred after death. Dr.

(*a*) "Medici non sunt proprie testes, sed est magis *judicium* quam testimonium."

Wright seeks to sustain his views by contrasting the morbid appearances in death by suffocation (asphyxia proper), with those induced by the narcotic gases eliminated by combustion, assigning solely, as the operative ingredients of the latter, carburetted hydrogen and carbonic acid,—an assumption to which we are not prepared unreservedly to accede, as doubtless carbonic oxide, and possibly various empyreumatic products, exercise a concurrent influence. In reference to the condition of the lungs and heart, had it been the vital question to be solved, whether the congestion was the result of asphyxia (as from a successful attempt to smother), or the effect of the inhalation of the gases of combustion, we conceive (without impugning the correctness of Dr. Wright's judgment in the case before us), that the criterion of *comparative* vascular plenitude of the above organs, on which he seeks to establish the diagnosis, is of too delicate and inconstant a character to be safely admissible in the investigation of cases fraught with such important consequences as the present. In estimating degrees of a given state of parts, it is indispensable to the formation of a sound conclusion, that the observations should be made by a practised eye, guided by an instructed mind, prone to weigh the influence of modifying circumstances; and we can contemplate that, even under such favourable conditions, the formation of a definite opinion on the above grounds, would be far from an invariable possibility. Hence, diagnostic judgments, drawn merely from the intensity of a specific condition, should, in our opinion, be received with the utmost reserve, especially when (as occurred in the present instance) constructed not on personal inspection, but on the report of others. But, in truth, the assumption that, even in undoubted death by burning, resulting from the ignition of the clothes, or from a transitory and partial exposure to fire, the proximate cause of the mischief is to be sought in the inhalation of the gas-products of combustion, is not only unsupported by facts, but vicious; being one of the thousand modern quasi-physiological explanations, analogous to the notion which refers death in drowning to the accumulation of some extra amount of carbonic acid in the lungs,—one which, like the latter, wilfully forsakes the palpable, for the speculative and fantastic. Dr. Wright's testimony, however, appears to oppose the idea of death from the inhalation of combustion-gases, chiefly on the ground of the less degree of pulmonary and right-heart engorgement in the latter, than in asphyxia proper. We should have been disposed, waiving such considerations, to treat the objection as speculative and unsustained, and sufficiently refuted in the case at issue, by reference

to the maximum interval between the last observation of the deceased, and the discovery of the body.

The inhalation of the gases of combustion being thus disposed of, as a cause of death, the inquiry next suggests itself, whether the latter might not be found in the burned condition of the body; thus involving, in the second place, the question of the vital or post mortem origin of the burns observed. It has been already noted that none of the latter presented evidence of surrounding vital reaction, but that a vesication, supposed to have contained serum, occupied the right leg. Does, then, the absence of the signs of reaction indicate with certainty that burning has taken place after death? Dr. Wright states it as the uniform result of his experience (which has been considerable in such cases), that *either* surrounding or *subjacent* redness, constantly accompanies vital burning in subjects healthy at the time of its occurrence. The author's statement with regard to *subjacent* redness in burns and vesications is worthy of much attention, as, undoubtedly, surrounding reaction is by no means a constant phenomenon. In our own inspections we have certainly seen injection of the areolar membrane in patches under the burned part, and also, where the skin was but superficially burned, its section exhibited red coloration towards its attached surface. The varying intensity and duration of the heat applied is also capable of giving rise to conditions which do not appear to have been described by authors. Thus, in the instance of a suicide found dead on a burning lime-kiln near this city, and who presented a deep incised wound in the neck, and unequivocal signs of vital burning on the body, the integument of the fore-arm exhibited a very dark red tinge or staining throughout its entire thickness, the cuticle had lost its adhesion, and the surface of the true skin was thinly coated with a *bloody* serum. Similar conditions in greater intensity were observed in the skin of the great toe, the nail and cuticle of which were detached, and the surface of the cutis vera presented both vascular injection and intense red staining, and was fully coated with a thick, uniform, bloody fluid, not unlike that which is seen in the stomach in many cases of irritant poisoning. On the more deeply burned parts there were also well-marked gaseous vesications. In burns on parts of the body dependent after death, the *livor* surrounding them might be confounded by the inexperienced observer with marks of vital reddening.

The experimental results of Dr. Wright on vesication are peculiarly important, as tending to subvert the usually enter-

tained view that, except in œdematous subjects, vesications containing *serum* are undoubtedly vital. Our author has found it possible, by the use of a spirit-lamp, to produce a *serous* blister on bodies (where organic life still lingered in the tissues), half an hour, and in one remarkable instance, *three hours and a half* after death. Operating on amputated limbs (which are unfavourable subjects, from the necessary loss of blood) similar vesications were effected, in from half a minute to four and a half minutes after amputation. In the instance of vesication three and a half hours after death, the body being warm and the joints flexible, the parts operated on were slightly anasarcous. That this condition was not the sole cause of the result, seems probable from the fact, that similar treatment did not produce blistering after the body had become cold and stiff. We cannot, however, concur with Dr. Wright in viewing the vesications " as in no wise dependent on the anasarca," inasmuch as the author's plates show a material difference in the size and appearance of the serous vesicle produced in the anasarcous(*a*), as contrasted with those observed in his other cadaveric experiments. The character of the latter is thus described:—" The detached skin (cuticle?) is loose, wrinkled, and soddened, being saturated with serum, and having very much the appearance of a woman's hand after continued work at the washing tub. This skin has a soft pulpy feel between the fingers, which it moistens on pressure. The subjacent tissue is *quite pale* and glistening with serum, which is sometimes in quantity only *sufficient for lubrication*, and again will amount to *one or two drops in the space of a square inch*." Dr. Wright has done good service in drawing attention to the diagnostic value of injection of the surface of the true skin, in vital vesications, to which we will add that we have once found the serum *tinged with blood*, and coagulated, though not having in anywise lost its transparency.

Vesications containing air are usually assigned by authors as non-vital; this, however, we submit, should be received with restriction, as such a condition obviously indicates only loss of vitality in the *texture* involved, while *systemic death* may not have as yet arrived; in other words, the part burned may be dead, carbonized even to air-blistering, while the individual still lives. It becomes, therefore, the more imperatively necessary to seek indications of *subjacent* redness in those cases of extensive burning in which red areolæ and well-marked serous

(*a*) The vesications, in this instance, contained fully *two and three drachms* respectively, and are delineated as bullæ of nearly an inch in diameter.

vesication are absent. But to revert to the judicial inquiry connected with Dr. Wright's observations, it does not appear unequivocally from the record in the case of Newton, that the medical inspectors failed to discover redness subjacent to the burns, or that such inquiry was entertained at all. In the absence, therefore, of information on that point, we must rely for evidence that burning had no share in the causation of death, on the nature of the internal appearances, which in rapidly fatal cases are, according to our author, rather those of partial vascular injection with arterial blood(*a*), than of extensive venous congestion with loaded pulmonary heart. Dr. Wright meets Dupuytren's assertion of the occurrence of congestion in the great splanchnic cavities in immediately fatal cases of burning, by assigning to its instantaneous production a place amongst physiological impossibilities; and argues that such deaths must be of the nature of syncope, a condition in which the heart is not uncommonly found empty, although, if we are to rely on the evidence of Devergie, by no means so in all instances. Indeed the latter author states it as the result of his experience, that the right and left cavities are equally filled with blood, and throws out the suggestion that the separation of a fibrinous clot in the right ventricle may possibly prove distinctive of this mode of death. In estimating death by syncope the condition of the heart (thus presenting marked variation) must be taken in conjunction with that of the lungs, which latter is not one of congestion. A due comparison of all the facts will probably incline the instructed reader to agree with Dr. Wright, in viewing the burning in Newton's case as of *post mortem* origin. The difficulties of the inquiry were, however, increased by the assumption of counsel (who seem to have been unusually versed in legal medicine), that the deceased might have been asphyxiated by flame, either from its influence in obstructing the access of circumambient air, or through the intervention of spasm of the glottis. These difficulties were opposed by the allegation, that in an individual in possession of consciousness and voluntary motion, death could not result from the asphyxiating influence of flame, unless he were surrounded by it, and that spasm of the glottis would *probably* give rise to farther changes in the air-passages and lung-structure than those observed. While the latter distinction appears, to say the least of it, unsatisfactory, it seems to us that the objection admits

(*a*) Magendie has very lately observed that in animals rapidly killed by exposure to a high temperature in stoves, the blood in the arteries and veins was black, various internal organs (including the lungs) were infiltrated with blood, and ecchymoses were present on the skin and mucous membranes.

of a sufficiently easy refutation in the absence of any evidence of more than a momentary persistence of the spasm, granting the possibility of its production by the means assigned. The short interval previously to the discovery of the body in the present case, rendered it unnecessary to entertain the question whether the inhalation of flame might not act as a cause of secondary asphyxia through the agency of œdema of the glottis.

If the soundness of Dr. Wright's views as to the appearances in the thoracic viscera in rapid death by burning, and the uniformity of the alterations in that quarter, be conceded, and the absence of vascular injection in the vicinity of the burns be considered as sufficiently sustained by the inspection of the Bridgenorth physicians, there can be no difficulty in admitting that the medical facts were more in accordance with the hypothesis of death from asphyxia independently of burning, than with any other view of the case. Dr. Wright, already so favourably known by his previous researches, has by his present publication furnished a most profitable mental exercise for the practitioner,—one of great value to all who contemplate the possibility of being called on to assist justice by the light of accurate and well-digested medical science, in which category, every member of our profession, doubtless, expects, and should aspire to be deservedly placed.

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1. *Des Falsifications des Substances Alimentaires et des Moyens Chimiques de les reconnaître.* Par Jules Garnier, &c., &c., et Ch. Harel, &c. Paris, Baillière, 1844. 12mo. pp. 528.

2. *Dictionnaire des Alterations et Falsifications des Substances Alimentaires, Medicamenteuses, et Commerciales, avec l'Indication des Moyens de les reconnaître.* Par M. A. Chevallier. Paris, Bechet, Jeune, 1850, vol. i. 8vo. pp. 479.

3. *A Treatise on the Falsifications of Food, and the Chemical Means employed to detect them.* By John Mitchell. London. Baillière, 1848, pp. 334.

We do not know if the ancient Greeks and Romans carried the science of cheating their neighbours, by adulterating the articles which they sold, to the same degree as we moderns do; for, fortunately for their reputation, and, we would also add, for the peace of mind of old ladies and cosmopolite philanthropists, who, doubtless, were as numerous in those ages as in our own day, there were no analytic chemists to drag their dark deeds

into light. If we may be allowed to judge from such examples as the rapidly spreading civilization of modern times has still left, of what may be denominated primitive civilization, we fear the honesty of the ancient world was no better than it should be. Indeed the instances which we have from time to time read or heard of concerning the capacity of that stereotyped people, the Chinese, for the art of giving strange names to objects well known, exceed anything of a similar kind recorded by the prying industry of a Chevallier. What, for instance, would he, who, as a true Parisian, must be a judge of a good boot, think of a Chinese who sold a countryman of his a pair of elegantly finished boots made of paper! That he was unacquainted with such ingenious discoveries we are led to infer from the fact that in this, the first volume of his dictionary, he does not give this species of adulteration, though probably he may do so under the article *shoes*. But, whatever progress our classic friends may have made in this great branch of science, there can be no doubt that in modern times it has shared the same degree of attention, and, doubtless, has gone on with the same rapid strides, as any of the other applied sciences. It is, however, difficult to trace its historical development with the same accuracy as we may do in the case of other branches of human knowledge, owing to the great modesty of some nations, who feel certain conscientious scruples about appropriating other people's discoveries. In justice to the French we must say that they boldly assert their rights on this point as well as on other questions; and, if we are to consider Chevallier an unprejudiced chronicler, we must also say that they may be proud of their discoveries, as well from their number as from their ingenuity. In the performance of a task like our's, we should not be deterred from doing ourselves justice from any over-delicate sense of modesty; and we therefore say that the British Nation should not allow itself to be plundered of its well-deserved laurels in this field, no more than it did of its conquest of the planet Neptune. Is not the discovery of making three pounds of pepper from two, or that of an inexhaustible bottle of quina, to soothe the poor patient in fever, of equal utility and far more philanthropic than that of planting the British flag on a distant and probably barren planet, which it is probable we cannot colonize. A truce, then, to such mock modesty! We assert boldly, without fear of contradiction, that our neighbours on the opposite side of the Channel have done more towards the progress of this important branch of human knowledge, than all the rest of Europe put together. We would willingly do equal justice to our own countrymen, but—alas!—we are gleaners

merely; our ingenuity is cramped, at least in practice (although in theoretical knowledge we believe we hold a respectable position), by our having no materials to practise on. We shall, therefore, pass over in silence, as too contemptible to be noticed, the slight *additions* which we occasionally make to the labours of others.

To be a little serious, however: it is impossible to read such books as those, the names of which stand at the head of this article, without being convinced of the sad fact, that the trade of this enlightened century is eminently dishonest. There is scarcely a substance we take up that is not more or less sophisticated,—the articles of food as well as those which minister solely to luxury and which have at all times formed the stock in trade of the mountebank: whether we take the productions of distant climates, or the corn grown on our soil, we are sure to discover some fraud. Strange inconsistency!—that a country which blazons forth to the world its morality and its observance of religion, where the petty thief who steals your pocket-handkerchief, or the unfortunate man who fills his empty stomach with a few of his neighbour's turnips, is immured for years in a prison, and branded for life as a felon, should look so lightly on the wholesale robbery of the fraudulent trader; where the same individual who sells to the starving artisan a quantity of gypsum instead of wheaten flour, or of chicory instead of coffee, is frequently found heading a requisition to call a meeting for the abolition of the punishment of death, or subscribing largely to purchase chemises for the little Niggers of Carolina, or talking flippantly of the dishonesty of the lower classes: and such inconsistency is not rare, although we are far from admitting that the human race is so completely devoid of honesty as a perusal of the various books which have been published on the subject of adulterations must inevitably lead us to believe.

We may divide adulterations into three classes:—First, the adulterations of such articles as are not employed for food or medicine; second, of food; and third, of medicines. The first class is evidently the least injurious to society, it is in fact a simple theft; but the results of the other two classes are the loss of that which cannot be measured by any money standard,—of health, and very frequently of life itself. It is beyond our province to dwell upon frauds of the first class, although we can assure those of our readers who have not paid attention to the matter, or who have not purchased experience, that they would afford ample materials for a philosopher to show the effect of money in sharpening the intellect of the most dull, and of proving the magic power

of man in transmuting matter; we shall, therefore, confine ourselves to the consideration of the second and third classes of adulterations, or rather to the consequences resulting from them, as it would require a volume to merely enumerate all.

An adulteration of an article may arise either from a direct intention of committing fraud, or simply from ignorance of the effect of a substance or of the proper method of preparing the article in the first instance. The latter cases are very common. Among the many instances which we have had an opportunity of seeing, we may mention that of a person who employed a basic acetate of lead to remove acidity from a quantity of wine which he had for his own use, and doubtless would have done the same if he had had it for sale. He was of course utterly ignorant of the poisonous nature of the salts of lead, or of the action of these compounds upon the wine, or he would not have employed them. The mistake arose from the process having been recommended in some old book of useful receipts; books which, we may remark, are frequently written by men utterly unacquainted with the commonest laws of science, and which are consequently fruitful sources of such adulterations. We need not go further than Mr. Mitchell's book, for an example in proof of this. At page 91, after giving a catalogue of the ingredients which go to make up that very curious compound denominated "porter," amongst which he enumerates cocculus Indicus, salt of tartar, alum, copperas, &c., he quotes the following curious *morceau* from the treatise of a brewer of the name of Child, and author of the catalogue just referred to, which for its *naïveté* cannot be surpassed:

"'And now, having finished the task he had imposed upon himself, and having seen his work run rapidly through several editions, in answer to the many inquiries which have been made, to the questions which have been put, and the letters which have been sent to him, he solemnly declares that he published this work solely for the public good; that he was neither influenced by envy at those who made fortunes by the secrets here exposed, nor by any private wish of particular gain to himself, but by a desire to soften the hardships of the industrious poor; and in this point of view he trusts the candid and impartial will consider his book as one step attempted to ameliorate the condition of the labouring part of mankind.'"

We never dreamed that there existed such a latitude for difference of opinion as to the means of ameliorating the condition of the poorer classes, as the above passage proves does

exist, for while all the physicians and chemists in the world agree upon the poisonous nature of cocculus Indicus, &c., we have the authority of Mr. Child for looking upon their use as actually a benefit to the consumers. Where, we ask, were the guardians of the public weal, when this book was published? or are politics, literature, and religion the only matters upon which men must not differ, whilst the public health, and with it the moral condition of the people, is allowed to be the toy of ignorant quacks?

By the side of this class of sophisticators, we may place the vendors of adulterated articles, whether of food or of medicine. When the adulteration of such articles has become so common, that very frequently it is impossible to obtain certain substances pure, we need not be surprised that persons of undoubted honesty will be sometimes found selling the most dangerous mixtures. In many cases these people are not to be blamed, or rather we should be thus generous only to the uneducated shopkeeper, but we can scarcely be expected to act similarly with the seller, when he is a man of education.

The system of fraud carried on by these manufacturers is perfectly incredible: they not only adulterate the articles which they sell, but the substances which they employ in their adulteration are themselves previously subjected to the same ordeal by others. We have known instances where sulphate and carbonate of barytes, or Dutch lead, had been mixed with oxide of zinc and carbonate of lead; and although the Dutch lead employed is exceedingly cheap, it had already been largely adulterated with a substance still cheaper, plaster of Paris. The great system of trade, which we in our simplicity supposed to be the result of the sterling honesty, enterprise, and capital of England, is, we fear, so far as regards the manufacture of drugs, a chimera; for we do not believe that it is possible to select a single substance from the list of the largest drug houses, that is not either intentionally or accidentally sophisticated. At one time we believed that we could tell the quantity of water in the common crystallized soda of commerce, but we confess that at the present moment it is so very nearly all water, that in using it we always consider it as a very dilute solution of carbonate of soda. As the trade appears to be a lucrative one, we would wish to afford our countrymen an opportunity of getting a little insight into its secrets; a few extracts from our private note-book will probably serve for the present as an introduction to the subject.

1. *Nitrate of silver:* composed of nitrate of silver, four parts, and nitrate of potash, one part. 2. *Balsam of Copaiba:* balsam

of copaiba (supposed pure) *ad libitum;* castor oil, do. 3. *Capsules* (*de Mothe's*) *of Balsam of Copaiba*: spermaceti, or train oil, as best suits. 4. *White precipitate:* precipitated carbonate of lime, and white precipitate, of each equal parts. 5. *Hydriodate of potash:* bromide of potassium, or hydriodate of potash, six parts; common salt, one part; carbonate of potash, a half part. 6. *Sulphate of Magnesia:* sulphate of soda in small crystals. 7. *Tartar Emetic:* sulphate of potash, and tartar emetic (supposed pure), of each equal parts. 8. *Calomel:* 1st, for the Western States of America: carbonate of lime (precipitated), nine parts; pure calomel, three parts. 2nd, for the Eastern States: pure calomel, one part; carbonate of lime, three parts. 9. *Kermes mineral:* red ochre, potato starch, lamp-black, Prussian blue, according to the taste and judgment of the maker; pure kermes, NONE; to obtain a fine violet-coloured kermes. 10. *Lactate of Iron:* sugar of milk, sulphate of iron, of each a sufficiency; lactic acid, none. 11. *Opium:* wash good, pure opium several times with cold water, to extract the morphia; make up again into mass, taking care to add capsules of the rumex, extract of indigenous poppy, a little clay, and the debris of a few palm leaves from a botanic garden, so as to obtain true oriental opium. 12. *Turkey Rhubarb:* take of the residuum of genuine Turkey rhubarb, after exhaustion with alcohol in the preparation of the tincture, six parts; fresh rhubarb, one part; the whole to be brought to the proper tint with a little turmeric. 13. *Confection of Cassia:* pulp of dried pears, treacle, confection of cassia, with occasionally a little lampblack, according to the taste and skill of the maker. 14. *Extract of Sarsaparilla:* extract of sarsaparilla, two parts; extract of saponaria, one part. 15. *Extract of Belladonna:* extract of solanum nigrum, *ad libitum.* 16. *Codein:* German morphia in small crystals, with a little sulphate of lime in crystals. 17. *Quina:* sulphate of lime in needles, or carbonate of magnesia, from one-quarter to one-half the morphia; or, salicine. The salts of morphia have in general the same composition.

These few notes will serve to indicate the proper methods to be adopted by all who aspire to success in this excellent art. It would be quite foreign to our object to enter more fully into the subject; but, as we shall show by and by, the books at the head of this article will supply all the additional information required.

We assure our readers that these recipes are genuine, and the proportions those of the more honest sophisticators. It cannot be a matter of wonder, therefore, that there should be a great difference of opinion among medical men as to the ac-

tion of various medicines; the wonder is rather how any definite results whatever are obtained. Let us for a moment imagine that a number of chemists used reagents adulterated to the same extent that many important medicines are in making their analyses, and we should like to know what would be the condition of science in a short time; and yet the case of physicians is perfectly analogous, with the exception that the consequence would not be so apparent. Suppose a physician orders for a patient at a critical moment a certain quantity of sulphate of quina, or any other specific of equal value. The prescription is taken to the shop of an apothecary, whose quina obtained in the usual way, consists of equal parts of the sulphates of lime and quina, where it is made up, and the unfortunate patient thus gets but one-half of the prescribed quantity. Or, if we suppose a person in the habit of taking a certain quantity of morphia, obtained from a vendor of a sophisticated article, without any injurious effects, should suddenly purchase the same article in a state of purity, the most fatal results might ensue. In all such cases, the injury inflicted is not confined to the patient alone; the physician is also deeply injured in his reputation; and he is very probably induced to give up a mode of treatment which, if pure medicines were employed, might be attended with the most satisfactory results. If such cases occur in large cities, and with patients able to purchase medicines, what must it be in country dispensaries, workhouses, &c., where the medicines are obtained by contract from the lowest bidder; and where some overwise guardian, in order to effect an economy to the union of a few pounds per annum, is ready to pounce upon the unfortunate doctor if he indulges in an expensive medicine to save the lives of his fellow-creatures. Cases of this kind are not at all uncommon, but unfortunately all matters of public hygiene are deemed of so little public importance, that except the coroner figures in the matter, they are never heard of. But bad as the case of the ordinary physician undoubtedly is, there is another class of men which labours under still greater disadvantages, the veterinary surgeons. It is, in fact, sufficient to say, that anything is considered good enough for them; cattle medicines being looked upon in every country as legitimate subjects for the exercise of the ingenuity of the adulterator.

The wanton and open disregard of public honesty with which this disgraceful commerce in adulterated articles is carried on is well illustrated by a species of trade which exists, we believe, rather flourishingly in this city. Whenever an auction of drugs is advertised to take place, a number of dealers in

Liverpool send over a quantity of goods of the vilest description, which they contrive to get introduced into the stock about to be sold, and thus pass them on the Irish public, sometimes by the agency of purchasers utterly ignorant of the quality of the article, but more frequently by men as unscrupulous as the original fabricators. One instance of this kind, remarkable for the coolest roguery, will serve as an example. During the failure of the potato crop, a large quantity of bicarbonate of soda was employed by the poorer classes in the preparation of bread; the article consequently became scarce, owing to the increased demand, and the price rose accordingly. Such a favourable circumstance was not lost upon fraudulent dealers, and immediately a large quantity of a spurious article was introduced, which, in one instance at least, consisted of a mixture of powdered washing soda and slaked lime!! We may remark that a great many other substances besides drugs are introduced in a similar way into this city, to the evident ruin of the honest trader, who cannot of course compete with such men. We are really astonished that attention is not publicly called to this system of fraud, which we are confident must be of serious injury to the best interests of the trade of any city.

The question naturally suggests itself to everybody, on hearing of such frauds, does not the law afford any protection against robberies of this kind? The answer to which, unfortunately, is, that it does not. If a grocer puts well-washed sand in his sugar, or chicory in his coffee, or flour, or starch, or yolk of eggs, or roasted almonds, or the envelope of the nut dried and reduced to powder, in his chocolate, or sloe leaves in his tea,—or if the tobacconist puts brown paper and treacle in his cigars, and sumach or fustic in his snuff,—the officers of the revenue seize upon the adulterated article, and fine the defrauder heavily, not, however, because he robs the public or occasionally poisons them, but because he defrauds the Government of a certain amount of duty, and even the punishment inflicted in such cases is merely a loss of money, when it ought to be considered and punished as a theft. But the man who puts sulphate of copper, alum, carbonate of ammonia, &c., in bad flour, to enable him to produce an apparently good bread, or carbonate of potash to increase the quantity of water which it can contain, or burned bones, pipe-clay, &c., to increase its weight, and thus gradually injures the health of numbers, and robs the starving artisan, is allowed to corrode society unmolested, and to perform all the highest functions of citizenship, in the exercise of which he may, probably, condemn to the doom of a felon many men far less guilty than

himself. In other countries, as in France, the laws against sophisticators are exceedingly severe, and are fully carried out, as is shown by the number of convictions which annually take place at Paris. Indeed so great is the number, that persons ignorant of the fact that adulteration is carried on to a much greater extent at home, imagine that the French adulterate everything. In the one case the thief escapes with impunity, and, of course, is not heard of; and in the other he is condemned to imprisonment, to the loss of civil rights, sometimes to lose the right of again practising his businesss, and to have his name and offence placarded by the police on all the public places. In Prussia, as we learn from the following passage quoted in the preface to Mr. Mitchell's book, the law is equally stringent:

"No person shall knowingly sell, or communicate to others for their use, articles of food or drink which possess properties prejudicial to health, under a penalty of fine or bodily punishment. Whosoever adulterates any such victuals in any manner prejudicial to health, or mixes them with unwholesome materials, especially by adding any preparation of lead to liquors, shall, according to the circumstances of the case, and the degree of danger to health, be liable to imprisonment in a correction house, or in a fortress, during a period varying from one to three years. Besides this punishment, those who are found guilty of knowingly selling victuals which are damaged or spoiled, or mixed with deleterious additions, shall be rendered incapable for ever of carrying on the same branch of business. The articles in question shall be destroyed if incorrigibly bad; but if otherwise, they are to be improved as far as possible, at the cost of the culprit, and then confiscated for the benefit of the poor. Further, whoever mixes victuals or other goods with foreign materials for the purpose of increasing their weight or bulk, or their seeming good qualities, in a deceitful manner, shall be punished as a swindler."

Stringent as these laws are, they are not found adequate to the evil, and for some time a number of persons in France have made many efforts, but hitherto in vain, to endeavour, by a well-digested series of laws, to meet the difficulty. Sooner or later this will be done, but with our philosophical creed of *laisser faire, et laisser passer*, it would be considered very unjust to interfere with the legitimate course of trade, even though that course was destructive to the true interests of society. This maxim is well illustrated by a remark of the Chancellor of the Exchequer, in the House of Commons, on the 23rd of last May: "That the public should learn to take care of itself, *caveat emptor* being the principle upon which

governments must act"(*a*); and, at the same time, shows how little reason we have to expect that the Government will take the initiative in this matter. Although there is, no doubt, a good deal of truth in the Chancellor's remark, we cannot see how each individual is to learn chemistry, botany, &c., and turn peripatetic lecturer on toxicology for the amusement of grocer's wives and assistants, and the terror of the husbands. We would like to see the Chancellor himself in that temple of mystic rites vulgarly called an apothecary's shop, taking care of himself in the matter of a prescription to be made up by the magi inside the counter; we rather fancy that the mysteries of the budget would be a trifle compared to the transmutation to which he would be witness.

But if the Government will not undertake to purify trade, what is to prevent the public from looking into the matter themselves? Attempts have been made, and not unsuccessfully, to form, in several large towns, as, for instance, in Dublin, a sort of voluntary "board of health." These have been already productive of a great deal of good, by calling the attention of the public to the important and hitherto much neglected science, "public hygiene." Now these bodies ought to take up the subject of the adulteration of food and of other articles which are used for domestic purposes, such as soap, which is subjected by the Liverpool merchants, at present, to the most ingenious system of sophistication; and if the law afforded no means of punishing the authors of frauds, public opinion might punish them by stripping them of the cloak of honesty which such persons generally contrive to envelope themselves in. If this were done we would soon adopt the continental system of having analyses of all commercial articles made before sale, a system which is already applied to saltpetre in London, but the want of which in the case of other articles is at present severely felt by the commercial world. The government of the United States has very properly taken up the matter, not, however, before it was much wanted, and requires, at present, that every chemical product, drug, &c., shall be analysed when imported. A provision might certainly be introduced, with great facility, into the new Medical Bill, for the appointment of a number of officers for inspecting and examining, when necessary, the food and medicines sup-

(*a*) An observation to be equalled only by that of another celebrated statesman of England, now in Opposition, who, a few years since, on being pressed to introduce some law for the safeguard of the public against quackery, quoted in reply the old adage, "The pleasure of being cheated is as great as 'tis to cheat."

plied to the union workhouses, and to whom similar questions arising in the several districts, and, in fact, all matters connected with the public health might be referred. We believe that the formation of such a staff of officers would be second only in importance to that of the establishment of schools. Unfortunately all our efforts are generally directed to the intellectual and moral, and none to the physical, entirely forgetting that the latter should first claim our attention, for, without due attention to it, progress in the former is impossible.

The Directors of the Apothecaries' Hall of Ireland have already taken a step in advance, by instituting an annual prize for analytic chemistry. For this they deserve much credit, as the only thing necessary to stop the adulterations of medicines is to thoroughly educate the apothecary in chemistry and botany, and the especial application of these sciences to the detection of the sophistication of drugs.

Although we have not hitherto done more than mention the names of the books which we have undertaken to review, we have, nevertheless, given a summary of their objects in the preceding remarks, and it only remains for us to say a few words on the peculiar merits of each, and on the general value of all such works.

The book of Garnier and Ch. Harel is confined to an account of the adulterations of food, and is written in an excellent spirit of philanthropy, which cannot be too highly commended. It is also to a considerable extent free from the exaggerations and improbabilities, which too often distinguish other works on this subject. The book of Mr. Mitchell is Garnier and Harel, suited for Great Britain, enriched by a great number of additional observations, such as his chapter "on the vessels in general use for the preparation and preservation of articles of food," which contains a great number of valuable remarks. It is a good popular book, and as such we can recommend it to the perusal of all who take an interest in public hygiene. The work of Chevallier will probably form three volumes, and as it includes nearly every substance usually adulterated, it will, when completed, be the most important on the subject hitherto published. Its arrangement also as a dictionary renders it more useful. It is distinguished by a minuteness of detail and a thorough research, which, despite of the faults of style and want of elegance in his descriptions of processes, must still render it the text-book of all who wish to discover the adulterations of others, or to adulterate for themselves. His general arrangement is very good. He commences by describing the substance, its properties and composition, then

its uses, the alterations it is liable to undergo from accidental circumstances, and which should not be confounded with malicious sophistication, and, finally, gives a very full account of all the modes which have been adopted to adulterate it. In the latter part, indeed, we very frequently found some of his statements rather incredible, believing that some of the cases of adulteration mentioned by him were either too absurd, or displayed such a contempt of crime, as on the one hand amazed and on the other appalled us: but really a little reflection has changed our opinions; and when we find facts which are known to everybody, or which we have ourselves witnessed, equal to, if not exceeding any of those related by Chevallier, we are very much inclined to believe the entire. Some of the ridiculous are at the expense of the defrauder, as that of La R——, who mixed iron filings with a quantity of iodine, for the purpose of increasing the weight, and thus lost his iodine, and nearly lost his life.

In conclusion, however, we must say that although a book liké Chevallier's may be useful in giving a list of the recorded adulterations, they are too scientific for the non-scientific, and are useless and sometimes even puerile to chemists. Let us take, for instance, the first article in his dictionary, "absinthe;" this plant, the artemisia absinthium, he says is sometimes adulterated with other plants of the same genus, such, for instance, as the artemisia maritimum, which he states has much smaller leaves, covered on both sides with a whitish down, and has a flavour and odour much less distinct than the true. We leave our readers to judge whether the mass of persons who are unacquainted with botany would be able, from this description, to detect the substituted plant. Again, in the second article: "Acetate d'ammoniaque," he mentions that this substance is sometimes adulterated with sal-ammoniac, which he states is detected by acidulating the solution by nitric acid, and adding nitrate of silver, which precipitates the hydrochloric acid; it may also contain sulphate of ammonia, which he says is detected by chloride of barium, which precipitates the sulphuric acid. Now, such processes are known to the merest tyro in chemistry; but if we suppose a person unacquainted with that science, or having merely the acquaintance gained from one or two courses of lectures on the subject, undertook to perform the above operation, his first step would be to procure some nitric acid of commerce, which, as all who are acquainted with the matter at all know, contains sulphuric and hydrochloric acids, and hence, with such acid, nitrate of silver, and chloride of barium, he would be able to find sulphates and muriates in every body

in nature. If we had taken more complicated substances the remark which we made above would be still more true. Hence we can conclude that, for the protection of the public from frauds of this kind, a staff of officers, properly educated, should exist; and for the safeguard of medicine, the apothecaries should pay more attention to chemistry, a recommendation which, if followed, would soon raise them to the same rank that their brethren on the Continent hold, who, it may be said without exaggeration, form the most useful and intellectual body in society, for proof of which we have merely to state, that more than half the great chemists of Europe, at the present moment, have been, and in many cases still are apothecaries, even in country villages.

A Manual of Elementary Chemistry, Theoretical and Practical. By George Fownes, F.R.S., &c. Third edition. London, Churchill. 1850. Post 8vo. pp. 605.

A Practical Handbook of Medical Chemistry. By John E. Bowman. London, Churchill. 1850. Post 8vo. pp. 259.

Owing to the untimely death of Professor Fownes, the completion of the third edition of his useful Manual of Chemistry was intrusted to Dr. Bence Jones, and it now appears complete in every department, and brought down to the present advanced state of this most important science. As a concise book of reference we consider it the best that has been published in the English language; but for the student we prefer the "Elements" of Sir Robert Kane.

Mr. Bowman by his present publication has well supplied a want in medical literature, much felt by the practising physician. In a clearly printed and beautifully illustrated little volume, he gives, at sufficient length, instructions for the examination and analysis of urine, blood, and a few other of the more important animal products, both healthy and morbid, and also directions for the detection of poisons in organic mixtures and in the tissues. Indeed, we know of no work which has lately issued from the press more likely to prove both useful and acceptable, especially to our country readers.

Portrait of Sir Philip Crampton, Bart., F.R.C.S.I., F.R.S., &c. Painted by W. Stevenson, Engraved by D. Lucas. Dublin, Hodges and Smith.

Portrait of Sir Henry Marsh, Bart., Physician in Ordinary to Her Majesty. Painted by W. F. Burton, Engraved by G. Sanders. Dublin, Cranfield.

In our last Volume we brought under the notice of our readers the admirable likeness of the late Abraham Colles, and we now beg to call their attention to the above excellent portraits of our only Irish medical baronets. We have a great dislike to biographies of eminent men written during their lifetime. What may be but just and deserved praise too often bears the semblance of flattery when applied to the individual still engaged in the busy struggles of professional life; we will, therefore, speak now of these engravings only as works of art.

The portrait of Sir Philip Crampton, which was published some years since, is a spirited and faithful likeness, conveying to the beholder the happy expression of one on whom time sits so lightly. While that of Sir Henry Marsh is a truthful representation of the beautiful painting by Burton, the highest praise we can bestow upon it: this engraving has been printed in Dublin by Mr. Cranfield, to whose spirited exertions we owe the introduction of this important department of the fine arts into Ireland; and for which, on the part of all interested in the prosperity of our country, we beg to tender him our warmest thanks.

We hope that the sale of these engravings will be sufficiently remunerative to induce their respective publishers to afford the profession an opportunity of possessing the likenesses of all those who have risen to eminence amongst us, and raised the character of Irish medicine and surgery throughout the world. An undertaking of this nature, as regards England, by Mr. Stone of London, we have, in a previous Number, spoken highly of; and Mr. Schenke of Edinburgh, some years since, published a series of admirable lithographic portraits of the eminent medical men of that city.

PART III.

REPORTS, RETROSPECTS, AND SCIENTIFIC INTELLIGENCE.

PATHOLOGICAL REPORTS OF THE CORK MEDICAL SOCIETY.

SESSION 1849, 1850.

Scarlatina; Anasarca; Albuminuria; Empyema of the left Side.—Doctor Finn narrated the following case.—Abigail Donovan, aged 8, of low stature and emaciated form, was admitted into the North Infirmary, on the 28th November, 1849, labouring under febrile symptoms, which ushered in an attack of scarlatina. In the course of her convalescence, anasarca, complicated with albuminuria, supervened. The former yielded to treatment, but the urine, which was secreted in very small quantities, still continued albuminous, and presented the appearance of being mixed with grumous blood, depositing from day to day, in great abundance, a dark pulverulent precipitate. On the 24th December she was suddenly seized with excruciating pain, referred to the lower part of the left side, which was relieved by the application of a few leeches and sinapisms, her wretched physical condition not admitting of more active measures. This treatment, however, did not control the incipient effusion, which now rapidly increased; the affected side, after an interval of a few days, measuring two inches more than the other; and the heart being observed to pulsate under the right mamma. She sank rapidly, and died on the 18th January, 1850.

Autopsy, about twelve Hours after Death.—Body emaciated to the last degree. On raising the sternum, a considerable quantity of sero-purulent fluid escaped from the left pleura; this fluid wholly occupied the left pleural cavity, amounting in quantity to about five or six pints, and on its removal the lung, which was so diminished in volume as almost to escape notice, was observed lying against the spine. The heart was placed across the mediastinum, with the apex corresponding to the right mamma. There was nothing abnormal in the size or external configuration of the kidneys. A

vertical section of one presented some patches of considerable vascularity, irregularly spread over the cortical portion, whilst the cortex of the other was of an opaque yellow colour, and devoid of vascularity.

Pleuritis with Effusion.—Tubercular Deposit in the Apex of each Lung, and in the false Membrane.—Dr. Popham exhibited the lungs of a patient who had died of the sequelæ of acute pleurisy. The subject from whom they were taken was a policeman named Delany, aged 23, of a strumous habit, who was admitted into the North Infirmary in January, 1850, complaining of severe pain in the inferior part of the left side of the thorax. The symptoms on his admission showed a very aggravated state of disease, and he had been more than a month ill, without receiving any treatment. His breathing was very rapid; while speaking he had to pause at every word to take breath; the only position which he could maintain was the sitting one, with an inclination forwards, and to the left side (the diagonal of Andral). On percussing the left side, it was completely dull at the left mammary and lateral regions, and posteriorly below the inferior angle of the scapula; no respiration was audible in these parts, and there was complete absence of the vocal fremitus, which was distinctly perceived over the opposite lung. The heart was not heard in its usual position, but was felt beating with great rapidity to the right of the sternum, between the fourth and fifth ribs, the sounds being otherwise normal. Additional proofs of the existence of liquid effusion into the left pleura were deduced from the fulness of the lower intercostal spaces, the increase of an inch in the measurement of the left side over the right, and the diminished mobility of the same side. These symptoms indicating that liquid effusion existed in the left side of the chest, he was treated upon the plan laid down by Dr. Stokes, by leeching successive parts of that side, and by the cautious use of mercury, which was, of necessity, combined with opiates, as his bowels were easily irritated.

When the more urgent symptoms abated, counter-irritation was used, and diuretics, including Lugol's solution of iodine, freely administered. After a few weeks of this treatment, a marked improvement took place, and also a change in the physical signs. The whole circumference of the chest had diminished, the excess of the left side had disappeared, the intercostal spaces became depressed, he could lie in any position, respiration had returned anteriorly as far as the left mamma, and the heart was heard under the sternum. A friction sound was heard about the inferior angle of the scapula. At this period it was judged advisable to send him to the sea side to recruit, but he most imprudently returned to his barracks, which were in an exposed situation, and got a fresh attack from cold. When he was re-admitted to hospital a month afterwards, he was suffering from colliquative diarrhœa, the result of improper food; evidence of tubercles existed under both clavicles, and the left side of the thorax was undergoing contraction. Signs of pneumonia were

also found in the lower lobe of the right lung. He died towards the end of May, five months from the date of his illness.

Autopsy.—The right lung adhered closely at its lower half to the walls of the thorax; and, on a section being made, exhibited small portions of the lower lobe in a state of hepatization, and of a very dark colour. The entire surface of the left lung was attached to the chest by a dense layer of false membrane, forming along the left margin of the sternum an impassable barrier which prevented the heart from returning to the left side. The adhesion of the lung continued all round and downwards as far as the base, the margin of which was rounded off, and turned in so as to give the central part of the base a cupped appearance; this was not attached, and contained a small portion of fluid. In the layers of false membrane which invested the anterior and inferior portions of the lung, and which, in some parts, were half an inch in thickness, and as hard as cartilage, were imbedded two masses, each about the size of a walnut, one greyish-yellow, firm, but cutting like wax, the other of a scirrhous hardness with a central cyst. Miliary tubercles, in small groups and single granules, were scattered over the false membrane of the left pleura; they were whitish, rounded bodies, about the size of pins' heads, and not unlike the variolous pustule in its early stage; they existed in greatest abundance in the inter-lobular septum. The appearance of the left lung was like an organ that had undergone compression; it was little more than half the size of the right; crude tubercles existed at the apex. At the summit of the right lung tubercles also existed in a more advanced state. There was some fluid in the pericardium; the heart was rather large, but otherwise natural. The liver was in a state of cirrhosis, and contained yellow tubercles, and ulceration existed extensively in the intestinal canal.

Dr. Popham considered the above case to form an interesting example of the transition stages of pleurisy. As far as the physical signs could be interpreted, extensive liquid effusion existed at an early period of the disease in the cavity of the left pleura, producing, among a number of other symptoms, dislocation of the heart, and protrusion of the side. Under the treatment pursued, absorption of the liquid contents took place, which was accompanied by gradual expansion of the lung, and partial return of the heart. As the liquid retired, and the two pleural surfaces came into contact, adhesion occurred by means of the plastic lymph effused, which, in the precordial region, interposed a barrier to the further return of the heart. As the absorption became complete, almost total adhesion of the lung to the thoracic walls ensued, as if to prevent a recurrence of the liquid effusion, and a small portion only remaining was isolated by adhesion of the margins of the base, thus circumscribing its limit. It would seem probable that, had life continued much longer, the pleuræ of the base of the lung and of the diaphragm, by the absorption of the small portion of intervening

fluid which remained, would have contracted union, thus completing the adhesion of the two surfaces in their whole extent. As far as the pleuritic affection, by itself, is to be regarded, nature had effected a cure, an obliterated pleural cavity, like an adherent pericardium, being compatible with life; but the state of the liver and intestines, and the strumous habit of the patient, evident in the subsequent development of tubercle in the summit of the lungs and the false membrane, precluded the hope of recovery. The continued production of tubercle would have kept up irritation. Dr. Popham drew attention to the opinion of Rokitansky, that chronic pleurisy, when terminating in contraction of the chest, rather tends to prevent the growth of tubercle; certainly to this theory exceptions occur, of which the present case is one, the evidence of the physical signs establishing the date of the development of tubercle in the apex of the lungs as a sequela to the attack of pleurisy.

Adhesion of Pericardium; unusual Symptoms.—Dr. Harvey presented an example of extensively adherent pericardium, with slight dilatation of the cavities of the heart (the substance of the ventricular walls being about natural), in which both the symptoms and the physical signs had been unusual.

The patient, aged 54, a man of long-continued habits of intemperance, and constantly exposed to wet and cold, was admitted into hospital about six weeks before his death. He then presented an extremely pallid, anemic aspect, with puffiness of the eye-lids and face, and slight general œdema; in fact, he had quite the appearance of a person far advanced in granular disease of the kidney. He had an exceedingly small and weak, but regular pulse, about 90. The heat of surface was generally below natural; and the bloodless condition of his smooth, clean tongue and lips corresponded with his general aspect. His chief complaint was a sense of sinking, and occasional nausea, with extreme debility. Bowels relaxed; urine natural in quantity, and did not coagulate on the application of the usual tests, which were resorted to several times during the progress of the case. It did not appear that he ever had rheumatism, nor did he recollect any distinct attack of his chest from which might be dated the commencement of the pericardial affection.

On physical examination the impulse and sounds of the heart were both so extremely feeble that they could with difficulty be appreciated, except while the patient was sitting up and leaning forwards. The second sound only could be heard as he lay supine in bed.

The total absence of any irregular, tumultuous, or rolling action of the heart, and the unusually weak impulse, added to the natural condition of the renal secretion, seemed rather to indicate degeneration of the substance of the ventricles than the conditions which were disclosed by the autopsy, and in consequence some other points, as the part at which the apex of the heart struck the chest, which would have been auxiliaries in the diagnosis, were not particularly noticed. The man did not die suddenly.

Hypertrophy of the Heart; Disease of the Aortic Valves.—Dr. Finn related the following case:—David Croker, aged 36, a butcher's assistant, of rather tall stature, but slight conformation, was admitted into the North Infirmary, 26th November, 1849. His habits were reported to have been intemperate, and his health had not been good for the last twelve months. He attributed his illness to wet and cold, and had suffered from severe cough for some time, and from hemoptysis for a few days before admission. On admission his face was sallow, slightly jaundiced; distressing cough, with muco-purulent expectoration, which is occasionally tinged with blood; tongue coated; urine high-coloured, depositing an abundant lateritious sediment. Percussion elicits a clear resonance over the chest generally, with the exception of those parts immediately adjoining the præcordial region. On applying the stethoscope, loud sonorous râles are heard generally. The heart impinges with an unusual degree of force against the parietes of the chest, and the impulse is audible over its whole surface; a loud and deep bruit de scie accompanies the second sound, and is propagated throughout the arteries generally, whose vibrations present a well marked example of visible pulsation.

In about a fortnight after admission the jaundice had disappeared, and the urine resumed its natural colour; but the cough, which appeared to be in abeyance during the day, returned at night with increased severity, and almost uniformly deprived him of rest. About the latter part of January all the symptoms presented an unfavourable change. The anasarca re-appeared; the cough had increased in severity; most distressing orthopnœa supervened; and he died on the 5th March.

Autopsy.—Lungs congested, not presenting any structural change. The weight of the heart was twenty-two ounces; it was concentrically hypertrophied. The aortic valves were corrugated, opaque, and studded with atheromatous vegetations. In the aorta, which was very much dilated, a similar change of structure was observed extending as high as the arch. The mitral valve was also diseased, but in a comparatively slight degree. No change of structure was observed in the right side of the heart. The other viscera were not examined.

Aneurism in the Left Ventricle of the Heart, with Rupture into the Pericardium.—Dr. O'Connor detailed the particulars of the case as follows:—A young man twenty-four years of age, apparently of a good constitution, was admitted into the Workhouse Hospital, labouring under a slight rheumatic affection of the left wrist, with scarcely any constitutional disturbance, and complaining of no other illness. Whilst engaged in an angry conversation with a patient in the adjoining bed, he was remarked to become suddenly silent, and to grow pale. In a few seconds after the nurse was called to him, and found him lifeless. On examination after death, the pericardium was found distended to twice its natural size, and, when opened, to be filled with a quantity of serum and clotted blood. On removing the

clots the heart was found to be very much enlarged, soft, and flabby. The free surface of the pericardium was natural, but that part reflected over the heart was covered with a layer of false membrane, evidently not of recent origin; and small tuft-like bodies, formed of organized coagulable lymph, were attached to its surface. About the origin of the aorta the two surfaces were united by small bands of great firmness. On the anterior portion of this latter vessel, and just at its junction with the heart, an aneurism larger in size than a walnut presented; and in it was a fissure about half an inch in length. On examining the opening with care it was quite manifest that only a part of it was of recent origin, the remainder appearing to have been a former rupture that had been temporarily closed. The valves of the aorta were completely disorganized by deposition of calcareous matter, behind a large mass of which, and immediately within the ventricle, an opening (into which the little finger could readily be introduced) existed : it passed through the walls of the ventricle obliquely into the aneurismal sac. The valvular character of this opening prevented the blood from being driven with any great force into the aneurism, and would render probable the supposition that there might have been at some former period a slight extravasation into the pericardium which would have produced the inflammation, the effects of which were apparent, without leading to fatal results. From his father I learned that he had been engaged at a very laborious employment until a few days before admission into hospital, and that he never knew him to be seriously ill; showing how little constitutional disturbance will occasionally attend on pericarditis. This case also proves that the disease may be cured without adhesion of the opposed surfaces of the pericardium ; it is also interesting as showing the early age at which calcareous deposits may take place in the valvular structure of the heart.

False Aneurism of the Thoracic Aorta.—Dr. N. J. Hobart laid before the Society a specimen of false aneurism of the thoracic aorta. The most interesting feature in the case was the complete absence of any aneurismal murmur. He stated that he had visited the patient, Michael Scully, aged 55, on the 29th of December; he complained of severe cough, attended with difficult expectoration, of oppression and sense of constriction in the chest, occasional palpitations, and also of startings in his sleep. On examining his chest, a pulsating tumour, about the size of a hen's egg, presented itself on the right side of the sternum, between the second and third right sterno-costal articulations, over which also the tumour extended: the subcutaneous sternal veins were greatly increased in size, and particularly those passing over the tumour; there was some distention in the right supra-clavicular and supra-sternal regions, in which pulsation was very evident; the pulse was synchronous in both wrists, and there was no perceptible difference in the beat. On examination with the stethoscope not the slightest aneurismal murmur could be detected. The patient did not complain of any pain in the tumour or its neighbourhood, and stated that he had observed

the swelling for the first time but one fortnight previously. On the following day the patient was removed to the North Infirmary, and placed under the care of Dr. Hobart, Senior, where he remained until his death, three weeks subsequently; during this period, the distention in the right supra-clavicular and supra-sternal regions became greatly increased, while the tumour on the sternum remained stationary: the dyspnœa and dysphagia daily became more distressing, particularly the latter, until the 21st of January, when he sank. Strange to say, during the whole of this time the physical signs of aneurism were completely absent.

Autopsy.—The heart was somewhat hypertrophied; the aorta, both thoracic and abdominal, considerably dilated, and its internal surface studded with patches of calcareous matter. The aneurismal tumour extended from about two inches above the sternum in the neck to between three and four inches on the internal surface of that bone, and laterally on the right costal cartilages; the internal surface of the sternum was greatly eroded, particularly in one point between the second and third sterno-costal articulations, where the bone had been completely removed, and the tumour found its way to the anterior aspect of the sternum. The opening from the aorta into the tumour was about half an inch in diameter, and was placed on its superior surface, just at the junction of the ascending with the transverse portion of the aorta, not quite a quarter of an inch to the right side of the point where the innominata is given off: separating this from the aneurismal opening was a sharp calcareous spicula. The tumour contained a large quantity of coaguated blood and fibrine; its parietes were considerably thickened by the deposition of lymph on its internal surface; there had been no hemorrhage from the tumour. Death was occasioned by a gradual sinking of the vital powers, owing to the pressure of the tumour on the trachea and œsophagus.

Aneurism of the Abdominal Aorta at the Cœliac Axis ; Erosion of the Vertebræ ; Absence of Pain.—Dr. Popham presented specimens taken from a patient in whom the aneurismal diathesis was strongly marked, as throughout the whole extent of the aorta scarcely a part existed which was not studded with atheromatous and earthy deposits. After undergoing extreme dilatation at its ascending and transverse portions without rupture of its coats, the aorta had given way at the level of the cœliac axis, eventually causing death by bursting into the cavity of the peritoneum. The patient, named Michael Casey, a pensioner of the navy, aged 64, was admitted into the Cork North Infirmary in September, 1849, complaining chiefly of dysphagia and gradual emaciation, caused by the invariable rejection of solid food, almost immediately after being swallowed. According to his own sensations the morsel did not pass beyond the middle point of the sternum. Even fluids required to be used sparingly, in order to be retained by the stomach, a second effort of deglutition being usually necessary to prevent regurgitation. On examining him after his admission, a pulsating tumour was per-

ceived at the humeral end of the left clavicle, and a second, of much larger volume, between the ensiform cartilage and the umbilicus. The first time he noticed these tumours was about six months before, when he felt a fluttering sensation under the left clavicle; the epigastric pulsation came on subsequently. In the first, the throb could be felt both above and below the clavicle, and a double sound could be heard, the second indistinctly. The impulse from the tumour in the epigastrium was so strong that it gave to the ear a jarring and almost painful sensation; the sound was single, of a dull and muffled tone, and, though much louder, yet by no means as clear as the sounds of the heart, both of which were heard below the left mamma. No bruit de soufflet could be heard in any part of the chest, neither was any sound or pulsation evident in the course of the spine. The circumstance which most forcibly arrested attention in this case was *the great freedom from pain*, the only approach to which sensation, except when the tumours were compressed externally, was a slight dart, like the pricking of a needle, occasionally felt at the top of the left shoulder. His pulse was 70, very irregular, but of equal strength in both arms; great venous engorgement existed in the head, chest, and upper extremities. Towards the close of his life he suffered from dyspnœa, both constant and in paroxysms; and the position which afforded most relief was lying on the back, with the shoulders slightly raised, and inclined to the right side. The respiratory sounds were faintly heard over the right lung, and in some parts of the left side, but were inaudible below the left clavicle, and over the scapula posteriorily. His voice was not affected.

This patient expired suddenly on trying to get out of bed. The autopsy was obliged to be made hurriedly, but the chief parts engaged were removed for subsequent examination. On opening the abdomen, a large quantity of serum, slightly tinged, gushed out, and an immense mass of dark coagulated blood lay mingled with the intestines. On removing the viscera, the abdominal aorta was found closely adherent to the lumbar vertebræ, an annular opening of about an inch in diameter existing in its posterior wall, below the first pair of the lumbar arteries. The edges of this opening were rounded off, and had to be separated by the knife; the lumbar vertebræ, to which it was attached, were deeply eroded, and the cavity thus formed was in direct contact with the current of the circulation during life. An aneurismal tumour projected from the anterior and right lateral aspect of the aorta, forming a pouch of an ovoid shape, the size of the closed hand. The cœliac trunk proceeded from the lower part of the sac, but a probe passed along it failed to discover any communication. The superior mesenteric artery, however, was free, and its root greatly dilated. The usual coagulum of laminated fibrine was found in the sac, adhering closely to it in every part except a small channel, through which the blood had insinuated itself between the coagulum and the wall of the sac, opening by a small orifice at the superior part of the tumour. The aorta, on emerging from the sac, was constricted.

The ascending aorta and the arch were dilated to more than double the normal diameter, without any part becoming sacculated, or there being any fibrinous deposit: the dilatation lessened at the beginning of the descending portion. One of the aortic valves was patent from earthy concretions at its root, the rest were free; the orifices of the coronary arteries were greatly dilated, and the arteria innominata was enlarged to a size equal to the ordinary caliber of the aorta. On looking for the superior tumour no sign of it was visible externally; but on removing the left lung, the superior lobe of which was condensed and closely adherent, a small aneurismal tumour was found at the acromial end of the clavicle, projecting into the thorax, and containing fibrine, and, as far as could be determined on a hasty inspection, connected with the subclavian by a rent in its tissue, or a dilatation of one of its branches. The whole of the internal surface of the aorta was roughened by atheromatous deposits of various degrees of softening; these were intermingled with semi-cartilaginous layers, and extended into most of the larger arteries.

Dr. Popham stated that he brought the above case before the Society, as affording a remarkable exception to the general rule, that acute pain of the back existed when erosion of the vertebræ from aneurism occurred. This symptom, as far as he could discover, was first noticed by the late Dr. George Pearson, of St. George's Hospital, in a very interesting case of aortal aneurism, published in the thirteenth volume of the Edinburgh Medical and Surgical Journal. Lately Dr. Law, of Dublin, has directed attention to the duplex character of the pain suffered, viz. one kind permanent and aching, the other occasional and lancinating, as a symptom sufficiently constant to become a valuable diagnostic mark of the disease. Dr. Law's well-known accuracy of observation, and the frequent verification of his rule, by examples occurring to himself and other eminent physicians, have already stamped a value upon this sign; still it cannot be regarded as one of *universal* occurrence. Why it did not exist in a case of so much arterial lesion and degeneration as the above, Dr. Popham did not pretend to say. Perhaps the almost universal disease of the arterial system, by diminishing equably the contractile power of the aorta, had some effect, the loss of elasticity in the superior portion of the tube lessening the impetus of the current passing through the aneurism. Something also is due to the direction of the tumour, and its pressure on important structures, and to the feeble circulation and torpid sensations of advanced age. The dysphagia and stomach symptoms were explained by the pressure which the aneurism, by means of the pancreas crossing it, must have exercised upon the stomach, and by the deficient supply of blood arising from the impervious state of the cœliac artery. Another remarkable circumstance was, the fact of so large an amount of disease in the circulating system being compatible not only with life, but, to all appearance, with apparent health. This man had stated that he had not suffered any serious illness until a year previously, when he had

bronchitis and erysipelas of the scalp. There is reason to believe that the extensive changes which occurred in this case were of slow growth, thereby existing without material disturbance to health.

Concentric Hypertrophy of Heart; Disease of the Aortic Valves; Paralysis of the Right Side; Ramollissement of a small Portion of the Corpus Striatum. — Dr. Finn described the following case:— Michael Lyons, a cooper, aged 20, of moderate stature and slight conformation, admitted into the North Infirmary on the 22nd June, 1849; was reported to have suffered from the epidemic fever and dysentery of 1847, and subsequently from an attack of acute rheumatism. Since the latter seizure his health had been seriously impaired, and the palpitations of the heart which supervened wholly incapacitated him from resuming his former occupation. On admission his countenance was remarkably pale and anxious; eye-lids and lower extremities slightly œdematous; respiration hurried; pulse 120, wiry and bounding; percussion elicits a dull sound over a space considerably exceeding the normal limits of the precordial region; the impulse of the heart is violent and tumultuous, and on applying the stethoscope a loud bellows murmur, loudest in the supra-mammary region, and audible over the whole surface of the chest, is perceived to accompany both sounds of the heart. There is visible pulsation of the arteries generally.

For some time after admission into hospital, he appeared to have experienced some benefit from the treatment employed, when suddenly a certain peculiarity of manner and the slowness of his articulation indicated the cerebral complication that was in progress. In a few days afterwards he was seized with paralysis of the right side, the sensibility of the parts involved remaining unaltered. From this period to the fatal termination of the case on the 14th August, his verbal memory became remarkably defective, and the œdema of the eye-lids and lower extremities, which had previously yielded to treatment, re-appeared, the effusion being considerably greater in the paralysed than in the opposite leg.

Autopsy, a few Hours after Death.—The lungs were generally congested. The heart weighed twenty-one and a half ounces; the aortic valves were studded with atheromatous deposits, and the surface of the mitral valves was rough to the touch. On dividing the dura mater and exposing the brain, the vesicular neurine presented a remarkably anemic appearance. Horizontal sections of the brain revealed an absence of vascularity corresponding with that observed on the surface. A small portion of the corpus striatum on the left side exhibited the characteristic appearance and consistence of ramollissement.

Salviary Calculus.—Dr. Haines described the following case:—A man over sixty years of age applied for advice for an inflammatory tumour and hardness under the right side of the tongue, extending up from the submaxillary gland, which was to be felt enlarged, hardened, and somewhat prominent under the margin of the lower

jaw. He stated that this tumour had existed since his childhood. There were two or three points under the tongue, presenting a muco-purulent appearance. Aperients, fomentations to the jaw, and a cleansing wash for the mouth, were ordered, and he was desired to call in a couple of days, when it was intended to open the tumour under the tongue if necessary. In four days he called and stated that on that morning something rattled suddenly against his teeth, and that he at first thought it was one of his teeth which had fallen out; this was the calculus which Dr. Haines now exhibited. It was of an irregular oval form, about the size of a moderate hazel nut, and weighed twenty-four grains. The swelling in his mouth had considerably subsided, and he felt quite relieved.

A case somewhat similar to this had been related to the Surgical Society of Ireland. It was that of a young woman aged 21. She had felt the increase of the tumour from about her sixth year, and attributed its origin to an inflammatory attack after scarlatina. In both cases may be observed the very long period during which these calculi continue to increase. It is only by an obstruction of the duct, or the production of irritation, that they become troublesome and inconvenient, by causing tumour and inflammation.

An opportunity occurred of seeing this man at the end of twelve months; all swelling and hardness of the gland and surrounding parts had disappeared.

Chronic Abscess of the Liver, opening into the Pleura; Cicatrized Ulcers in the Rectum.—Dr. Harvey exhibited the liver and large intestine of a gentleman aged 27; the latter presenting the cicatrices of several recently healed ulcers, the former the seat of an enormous conical abscess, which occupied nearly the whole of the right lobe, and projected for many inches above the surrounding surface. The diseased organ had gradually encroached on the right pleural cavity, until the lung had collapsed to one-third of its natural dimensions. The walls of the abscess, with which the diaphragm had become incorporated, were so thinned on their upper surface, that, on opening the cavity of the thorax, pus flowed in great quantity.

The patient had been gradually losing flesh for over twelve months, but continued actively occupied, chiefly in the country, up to the time of his seeking advice for a troublesome and debilitating diarrhœa, of which he had several attacks. At this time he had frequent liquid feculent stools with patches of bloody mucus, passed without tenesmus or pain; indeed he had no pain from the first. There was no other abdominal tenderness, except in a slight degree over the sigmoid flexure of the colon. The tongue was not much loaded; pulse 100; occasional perspirations at night; no cough nor dyspnœa. His debility had increased considerably of late, but his appetite and sleep were good.

After some preliminary treatment with a view to correct the bowel affection, one or two enemata, consisting of half a drachm of nitrate of silver in eight ounces of distilled water with a little mucilage, were exhibited, when the bloody mucus totally disappeared

from the evacuations, and the bowels assumed a perfectly healthy action, and they continued quite well thenceforwards. The rapid pulse and constitutional irritation remaining unaltered after the improvement in the bowels, the source of this continued disturbance was further inquired into, when the right side of the thorax was discovered to be seriously engaged. It was found of greater girth than the opposite side, and dull throughout on percussion; respiration was only to be heard along the spine in the scapular region, but the intercostal spaces were not elevated, as in cases where fluid distends the pleural cavity: it was evident that the cavity was filled by a solid tumour, and that tumour proved to be hepatic abscess, with its contents as yet undischarged.

Death from swallowing a Copper Penny.—Dr. O'Connor detailed the history of the case as follows. A young gentleman, about eighteen years of age, called on him in a state of great mental uneasiness, stating that he had a short time previously swallowed a copper penny, that he at first made ineffectual efforts to grasp the coin with his finger, and that an apothecary whom he consulted immediately afterwards was equally unsuccessful in his efforts to extract it. A probang was afterwards passed without any difficulty, and he was comparatively well for several days, except that his bowels became very costive, so as to require the administration of very active aperients. In about a week from the date of the occurrence, he felt severe pain in the right hypochondrium, about the situation of the pylorus, which became more severe every day, extending up the right side towards the shoulder. Subsequently he had some degree of nausea and vertigo, and complained of a very peculiar distressing sensation, which he described as resembling a sudden and violent raising upwards of the right side of the body, from the point in which he felt the pain, to the top of the head. This feeling recurred frequently and distressed him very much. When this state had lasted a few days, he suddenly discharged a large quantity of blood by the bowels, and very soon after a quantity of clotted blood by vomiting.

The ordinary remedies were had recourse to, but the hemorrhage continued until the patient expired, about four-and-twenty hours from the first discharge of blood. The apothecary, who was in attendance, stated that, immediately after death, he distinctly felt the coin in the part where it was suspected to have been impacted, namely, in the pylorus, but an opportunity was denied of testing the correctness of this opinion by a *post mortem* examination.

Doctor O'Connor considered the novelty of the occurrence of death from such a cause a sufficient reason for bringing the case under the notice of the Society, more particularly as in books there is more generally found a recital of the extraordinary substances that have been swallowed and passed through the alimentary canal without producing much injury, than of the exceptional cases in which death has been produced by swallowing objects apparently less calculated to cause danger.

Uterine Hydatids.—Dr. Haines described the following case: A woman, aged thirty-three years, mother of five children, weaned her last child at about the nineteenth month, in consequence of having menstruated twice. In about three months after weaning the child she was seen accidentally in the country by Dr. Haines, when she was suffering from occasional losses of blood; a globular tumour could be felt in the lower part of the abdomen, which was evidently the uterus above the brim of the pelvis: there was nothing remarkable at the os uteri. In about three weeks from that period, Dr. Haines, being in the same neighbourhood, was told that this woman was very ill, and on visiting her, he found that she had considerable discharges, and had passed a quantity of a substance which filled a dinner plate. The uterus was now subsiding into the pelvis, the os uteri large and flabby, with apparently a few shreds still about it. A bandage having been applied, no farther loss took place, and she recovered, merely suffering from the not unusual flying headach. It was ascertained that in about two or three weeks a further separation of some of this same substance occurred, that she had taken some drops, and was since walking about, quite well.

In what was probably the centre of the hydatiform mass exhibited to the Society, there existed a large fragment of membrane of serous appearance, very like the amnion; between its walls a few serous bands extended, and bound them towards each other, a circumstance which we do not usually meet with in the amnion, though they are occasionally present, and have been seen by the author in blighted ova. On the outer side of this membrane were attached the vesicles in all stages of growth, depending from each other, and some smaller even appended to their foot-stalks. Diffused among them was the soft clot which is generally observed in such cases, and appears to be esteemed by writers an essential part of the mass. All the cells appeared to have a flocculent, filamentous layer on their exterior, covering and enclosing a clear serous layer. It is more than doubtful if these vesicles grow from the wall of the uterus by stalks, as has been said, though they may have some filamentous connexion by their surfaces, and through the medium of the soft interposed lymph-like substance. Dr. Haines doubts that these bodies have ever been found except as the result of conception, the ovum undergoing, at an early stage, an interruption to its ordinary mode of development, probably before passing from the Fallopian tube, that is, before the membrane of the chorion is completed, or its villi begun to be formed. This is probably the point of failure in the embryo, the amnion is then formed, and there may be sufficient vitality in this membrane, and in the decidua, to permit of all this abnormal development in these membranes of the ovum, and in what would be the natural situation of the chorion.

The farther fact in connexion with this case may be worth recording, that this woman afterwards conceived, and at twelve months after the escape of the hydatids, she gave birth to a living child at the full period. She died ten or eleven days after child-birth, but of what illness Dr. Haines could not learn.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

TENTH SESSION.—1849–50.

Encephaloid Tumours in the Abdomen.—Dr. Stokes laid before the Society the morbid parts illustrative of a case of prodigious development of encephaloid tumours, surrounding the aorta and vena cava, and extending from the cœliac axis to the bifurcation of the aorta. There was nothing remarkable in the history of the case. The patient had been for a length of time in very bad health; he laboured under chronic and intractable diarrhœa, and when he came into the Meath Hospital was in a very exhausted condition. At this period he suffered from ascites, and the superficial abdominal veins were varicose. The epigastric region was occupied by a flat tumour, which gave a somewhat feeble pulsation. This pulsation (which was not diastolic, as in cases of aneurism) was accompanied by a distinct bruit de soufflet. In connexion with this bruit de soufflet two remarkable circumstances were observed. One of these had been before noticed, viz., the cessation of the murmur when the patient assumed the erect position. But the other circumstance to which he alluded had not, he believed, been previously remarked. It was, that there had been observed for several days a distinct rhythmical character in the murmur. It was found that the murmur was most distinct at the termination of the expiratory effort, but at the height of inspiration it was either inaudible or exceedingly indistinct. He need hardly observe, that in this case there was a combination of symptoms greatly opposed to the idea that it was one of aneurism. The occurrence of ascites, the enlargement of the abdominal veins, the state of the patient's general health, the feebleness of the pulsation in the tumour, and the rhythmical character of the murmur, formed together a group of signs completely opposed to the existence of aneurism, and accordingly he arrived at the conclusion that it was not a case of aneurism, but that in all probability the tumour was of a malignant nature. But it was found, after death, that what was felt in the epigastrium was not the tumour he had diagnosed, but was really the left lobe of the liver which covered the true tumour. In this respect, then, namely, as throwing light upon the physical signs of a tumour receiving an impulse from the aorta, and that impulse being communicated from the tumour which received it to an organ by which it was covered, viz., the liver, the case possessed great interest. In this instance the sound was conveyed through two separate formations. The morbid mass consisted of a vast number of enlarged mesenteric glands, several of them being equal to the kidney in size, and all presenting the characters of encephaloid disease: they closely embraced the aorta and

vena cava. Sections of the tumours exhibited a creamy, brain-like fluid, several white tubercles, and sanguineous matter. It was a very interesting fact, in connexion with the last-mentioned circumstance, that exactly at a point corresponding to the centre of the tumour, the aorta was very much diseased, being filled with ossific plates, and its lining membrane much disorganized in this situation. But, both above and below this spot, the artery was comparatively healthy. It was certainly a remarkable feature in the case, that, in a patient who had this bellows murmur, they should find a diseased state of the artery precisely in the position where the murmur had been heard; and yet it would appear that this diseased condition of the artery had not produced the murmur, for whenever the patient was examined in the upright posture, by which pressure was taken off the artery, the murmur ceased. They were, therefore, led to conclude, that even the vast amount of disease found in this instance was not in itself competent to produce the murmur, and that for its production pressure was required. Upon the edge of the liver a hard scirrhous mass was found to have been developed.

Before he concluded he might remark, that in the present case, as in many others, it was found that when a tumour lay upon the abdominal aorta, the bruit de soufflet disappeared on the patient assuming the erect position. The Society was aware of the researches of Dr. Corrigan upon the diagnosis of the early stages of aneurism of the abdominal aorta, in which he had shown that in certain cases the bruit de soufflet disappeared on the patient assuming the erect position. It was very interesting to observe that in cases of this kind the same combination of physical signs might be produced from a totally different mechanism. In Dr. Corrigan's cases the bruit de soufflet disappeared in the erect posture, because, according to him, the aneurismal sac became tense. But, in the case then before the Society, the same circumstance occurred in consequence of the pressure being taken off the artery when the erect position was assumed. It was only just, however, to remark, that the views of Dr. Corrigan were not put forward with a view to establish any differential diagnosis between aneurism and a tumour pressing upon an artery.

Injury of the Shoulder-joint.—Dr. Adams described a case of dislocation of the head of the humerus forwards, which had been reduced, with the account of the *post mortem* examination of the articulation, made thirty days after the occurrence of the luxation, the patient having died from the effects of another injury sustained fourteen days before her decease.

Eliza Dillon, aged 65, applied for surgical aid at the Richmond Hospital on October 27, 1849. She stated that she had fallen with much violence, and with her left arm extended from her side, in such a manner that the shock was chiefly sustained by the inner part of the elbow. The resident pupil, Mr. Johnston, recognised the usual characters of dislocation of the head of the humerus forwards; he noticed a remarkable flattening of the deltoid muscle,

and felt the head of the bone in its new situation. His colleague, Mr. Roden, also recognised the injury, as did likewise Surgeon Bichaque. The head of the bone was replaced without difficulty, Mr. Johnston having adopted the plan of placing the knee in the axilla; the patient expressed herself relieved, and went home. In a few days she returned to the hospital, complaining of more pain in her shoulder-joint than patients usually do after the reduction of this dislocation, when she was subjected to the ordinary treatment for a sub-inflammatory condition of the articular structures.

On the sixteenth day after the shoulder had been luxated, this woman, being deaf and rather feeble, while heedlessly walking across the street, was knocked down by a passing vehicle, and received a compound fracture of the elbow-joint, of which, after having suffered from constitutional irritation and erysipelas for fourteen days, she died. The left shoulder joint was examined after death: the deltoid muscle having been reflected, it was seen that the supra and infraspinatus muscles had torn off a large portion of the great tuberosity of the humerus, and that this portion had been partially re-united to the shaft by recent bony deposit. The anterior portion of the tuberosity, which lay next to the bicipital groove, still remained entire, and gave attachment to some of the tendinous fibres of the posterior articular muscles already mentioned.

Upon exposing the subscapular muscle, its upper margin, near to the coracoid process, seemed somewhat ecchymosed; and upon lifting up this muscle from the subscapular fossa, in the vicinity of the coracoid process, some well-formed pus was evacuated from the interior of the joint.

The capsular ligament was of a yellowish white colour and thickened, but no rupture could be discovered in it. On cutting into it the whole of the synovial membrane was found to be in a high state of vascularity. The appearance which it presented might be compared to that of the conjunctiva when in a state of acute inflammation. Upon examining the glenoid cavity it was discovered that a portion of its inner margin was torn off. This piece of bone was more than half an inch in length, and three lines broad. The cartilage of incrustation of the head of the humerus presented a porous appearance, as if punctated by small pin-points, and was very thin, as in some examples of diffuse inflammation.

With respect to the muscles in this dissection, it is to be remarked that they seemed to have suffered no injury. The supraspinatus and neighbouring short articular muscles are those which in general have been found to have suffered most in cases of dislocation of the shoulder; although in this instance these muscles were not torn, their tendinous insertion had been partially broken off. The double lesion of the tuberosity of the humerus and inner margin of the glenoid cavity, if it had been to any greater extent, might have prevented the head of the humerus from being preserved in its socket after the reduction of the displacement, and thus have presented a repetition of a specimen preserved in our museum, and

which Mr. Smith has already laid before this Society. In the case I have brought before the meeting, the bone, once replaced, remained in its socket; but in Mr. Smith's case, as the tuberosity was entirely torn off, all the posterior articular muscles, which should have retained the bone in its place when restored, had lost connexion with the humerus; it was thus abandoned altogether to the force of the muscular folds of the axilla, which displaced the bone forwards and inwards, and held it in the abnormal position. Mr. Thompson, about the year 1792, first noticed that a dislocation of the humerus might be complicated with a fracture of the tuberosity; and Sir Philip Crampton published a similar case, in the third volume of the First Series of the Dublin Medical Journal.

With respect to the capsule in Sir A. Cooper's and Sir Philip Crampton's cases, this ligament was extensively torn. In the case now adduced, examined thirty days after the injury, no rupture of the ligament could be observed. We may, I think, from this infer, that in this case, notwithstanding the obvious deformity observed, the degree of displacement must have been to the smallest amount possible, as the capsular ligament had not been torn; yet there can be no doubt but that the head of the dislocated bone lay beneath the root of the coracoid process. It is true the laceration of the insertion of the posterior articular muscles may have allowed the posterior portion of the capsular ligament to yield somewhat, and the tearing off of the inner or anterior margin of the glenoid cavity may have contributed to the same result.

Amongst the Hunterian manuscripts were found, in the handwriting of John Hunter, the notes of a case of dislocation of a shoulder-joint, which resembled this in many particulars. A man was admitted into St. George's Hospital, London, with a dislocation of the humerus into the axilla, which was reduced, and about three weeks afterwards he died of fever. "I was anxious," says John Hunter, "to see the state of the parts in so recent a dislocation. On dissecting off the infra and supraspinatus muscles I found nothing uncommon respecting the capsular ligament; but when I dissected off the subscapularis I found the ligament in some degree injured, so as to have lost a good deal of its uniformity. It was of a dark bluish colour in consequence of extravasation of blood into it, in part absorbed. I cut the capsule round nearly to the os humeri, where it was sound, so as to expose the inner surface of the ligament, and found that on the inner surface, between the insertion of the tendon of the subscapularis muscle into it and its fixture to the edge of the glenoid cavity, it was injured, corresponding to the external surface, although I could not say fairly ruptured through. I also found that a circular part of the cartilage on the edge of the glenoid cavity, to which the ligament is attached, was torn away from the bone for about an inch of the circle, and which must have been pulled off when the head of the humerus pressed against the ligament with great force; but it kept its attachment by the remainder. The separation was such that it could not allow anything to

pass between the bone and it. There was little or no extravasation of blood in the cavity of the joint; but, what was very remarkable, and what I did not expect, I found a good deal of pus in the joint. If this is common in such cases, what becomes of it? Here," he adds, "was a case of *undoubted* dislocation, and yet the capsular ligament was *not torn* when the luxation was effected, although it must be supposed that the giving way of the cartilage at the edge of the glenoid cavity admitted the ligament to yield more than it otherwise would. Although the ligament was not torn so as to let the head of the bone escape through the rent part, yet the head of the bone was certainly out of the socket; and, from all the appearances and circumstances taken together, how it got there without doing more mischief I do not understand."—*Catalogue, Royal College of Surgeons, England*, vol. ii. p. 206.

In visiting the museum of the College of Surgeons of London, two years ago, I took particular notice of this preparation thus alluded to in the catalogue; and I at the same time felt astonished that these facts, recorded by John Hunter himself, had escaped, as far as I knew, the notice of those who had written on dislocation of the shoulder. This case recurred to my mind with much interest when I met with the specimen I now present to the Society. From such cases as these we should infer that we ought to examine carefully every case of luxation of the shoulder-joint, both before and after we have replaced it, with a view of ascertaining if the luxation is a simple one, and unaccompanied by fracture or lesion of bone besides the luxation; and, secondly, that we should watch any symptoms of arthritis in time, in order to meet them with appropriate treatment, and prevent any serious consequences. In the case I have presented we discovered an amount of inflammation of the shoulder-joint, which no one had anticipated to have existed at the time when the patient was carried off by the effects of another injury.

Scrofulous Tumour in the posterior Wall of the left Ventricle of the Heart.—Dr. Banks detailed the particulars of the following case of diseased heart, and exhibited the recent specimen. The subject of the case, a boy aged eighteen years, was admitted into the Whitworth Hospital on the 7th of December, 1849. The strumous diathesis was strongly developed, his chest was observed to be deformed, and he had a lateral curvature of the spine. All that could be learned of his past history was, that in early childhood he had laboured under an attack of acute rheumatism, and that ever since, whenever he made any extraordinary exertion, he suffered from pain and palpitation in the region of the heart. About three years before his admission into hospital he had a second attack of acute rheumatism, from which period the pain and palpitations became much more frequent and distressing than before, and his breathing also became seriously affected. About six weeks before his admission, on rising suddenly from the stooping posture, he experienced

a sensation of weight and oppression in the cardiac region, and from that period to the moment of his death the palpitation and sense of uneasiness about the heart never left him. When admitted into hospital, on the 7th December, there was œdema around the eyes, and he was unable to breathe except while in the upright position. There were also severe pain and palpitation in the region of the heart, and he suffered much from sleeplessness. On looking at the front of the chest the impulse of the heart was visible over a considerable extent of surface, and, on placing the hand over the cardiac region, Dr. Banks detected a decided frémissement. With the assistance of the stethoscope he discovered a most intense bruit in the cardiac region, but found it impossible to distinguish between the first and second sounds. The heart beat with great rapidity and violence, contrasting in a remarkable manner with the pulse, which was feeble and irregular. There was also great dulness in the region of the heart, and on measurement he found that it extended over five and a half inches in the vertical direction, and five inches in the transverse. On the day after his admission the boy was seized with acute bronchitis, accompanied by copious expectoration, which was tinged with blood. The difficulty of breathing now became so intense that he died on the fourth day from his admission.

On opening the chest he found that the extent of the dulness observed during life exactly corresponded with the space occupied by the heart. This organ was greatly enlarged, but the enlargement was chiefly due to the presence of a large quantity of blood within it. The left auricle was both enlarged and hypertrophied, and its lining membrane was of a yellow colour. The pulmonary artery was also dilated, and filled with a large dark-coloured coagulum. The aorta was rather smaller than is usual at this period of life. The pericardium was found adherent throughout its entire extent, from which circumstance it might perhaps be inferred that the acute rheumatism (from two attacks of which the boy had suffered) had been complicated with pericarditis. In the substance of the posterior wall of the left ventricle, at its junction with the auricle, a tumour as large as a walnut was found. It was encysted, and contained calcareous matter and a substance resembling putty, which consisted of carbonate of lime. It involved one division of the mitral valve, and projected into the ventricle in such a manner as to obstruct the auriculo-ventricular opening. The left ventricle was neither dilated nor hypertrophied. The lungs were slightly emphysematous.

Fragilitas Ossium.—Professor R. W. Smith exhibited the pelvis and thigh bones of a female who had suffered from this disease, and which had been forwarded to him by Dr. Campbell, of Lisburn. The following was the history of the case, as furnished by Dr. Campbell:

Eliza Cosgrave, about forty-five years of age, a married woman, and mother of two children, the elder being nine years old and

healthy, the younger having died when about three months old, began shortly after the birth of her second child to complain of pains in her limbs, and generally over her body, which she attributed to her residence in a damp house. She soon became so helpless as to be unable to get into or out of bed without assistance. On one occasion, while being helped into bed, her thigh was struck against the bed-post, and the femur broken just below the trochanter. She now obtained admission into a neighbouring hospital, where she remained for many months, and was then discharged without having experienced any amendment of her condition. In this state she was removed into the Lisburn Union Workhouse, about two years ago. On examination the injured limb appeared to be about three inches shorter than the other; there was no crepitus, although acute pain was experienced when the thigh was handled or moved. Her general health at this time did not appear much broken, and her appetite was good; but her pains, chiefly in the thigh, were so severe as to require the administration of an opiate every night. Several months having elapsed in this manner, one night, whilst the nurse was turning her in bed, the other thigh was also broken near the trochanter, after which her pains for some weeks were mitigated to a certain extent. Diarrhœa at length set in, and resisted all treatment; her pains returned with greater violence than before, and she died after a few weeks of extreme suffering.

Upon examination after death the fractures were found to have occurred about two inches below the great trochanters; they had both become consolidated, but with great deformity remaining, the fragments being, upon each side, at right angles with one another. The pelvis and thigh bones were so light as to float upon water, and so fragile that a slight pressure of the finger was sufficient to crush the osseous tissue. The compact structure of the femora was as thin as an egg-shell, and the medullary canals enlarged, here and there crossed by delicate osseous septa, and filled with a grumous semifluid substance, resembling a mixture of medullary matter and blood. Mr. Smith observed that the facility with which fractures united in such cases was remarkable, the union, as Mr. Stanley has noticed, occasionally taking place within the ordinary period. Mr. Tyrrell has recorded, in the Reports of St. Thomas' Hospital, a case of fragilitas ossium, in which twenty-two fractures occurred, and observes that the injuries were repaired with greater rapidity than he had seen in other individuals, the union of the fracture of the femur being perfectly firm at the expiration of three or four weeks.

Mr. Smith, in conclusion, alluded to the extraordinary case of this disease recorded by Saillant(*a*), in which the lightness of the osseous system was such that the patient, an adult female, when placed in a warm bath, actually floated upon the surface of the water.

(*a*) Journal de Médicine, Chirurgie, et Pharmacie, 1782, t. lviii. p. 141.

Perforation of the Small Intestine.—Dr. Mayne exhibited the recent specimen, and detailed the particulars of a case of fatal peritonitis, caused by perforation of the small intestine.

The subject from whom the preparation had been removed was a man about thirty-five years of age, who had spent his whole life, with the exception of the last few months, in London. In the early part of the past summer he came to Dublin to superintend one of the principal departments of a large manufacturing establishment; and from this time, according to his own statement, his health, which had previously been good, began to give way. At first he attributed the altered state of his health to the unwholesomeness of the neighbourhood in which he lodged, and subsequently to the water of the city; but, whatever may have been the real cause, certain it was that, from the period the cholera made its appearance in Dublin, he suffered from severe diarrhœa, which came on about twice in the week, each attack being followed by a torpid condition of the bowels. In addition to this the patient became excessively nervous, insomuch that, whenever a fresh attack of diarrhœa set in, he imagined he had got the prevailing epidemic. However, notwithstanding the impaired state of his health, and his extreme nervousness, he never absented himself from his business, even for a single day, until about the beginning of September, 1849, when, for the first time, he was obliged to remain at home. About the 5th or 6th of December he was seized with what he supposed to be an attack of influenza. Febrile symptoms, with pain in the head and chest, short cough, and some difficulty of breathing, suddenly supervened; but, instead of sending for medical assistance, the patient commenced the treatment of his own case by taking a very powerful purgative draught, which produced at least ten or twelve copious stools, by which the patient's strength became so much reduced that he was obliged to confine himself to bed. On the morning of the third day from the commencement of this attack, he (Dr. Mayne) was sent for; but he was unable, after a most careful examination, to detect any abdominal complication in the case. There were general pyrexia, some headach, and thirst, and a kind of bronchitic cough, accompanied by a slight amount of irritation about the chest, though, upon examining the thoracic region, he could only discover a few bronchitic râles. The abdomen was pretty soft, and free from tenderness, and the patient made no complaint whatever of pain in that region. His first idea was, that it was a case of the ordinary catarrhal fever, and that the patient was likely to get over the attack. When he visited the man on the following morning he appeared to have improved considerably; but towards the evening of the same day a messenger called upon him to say, that a sudden change for the worse had taken place. The patient had now acquired the aspect of a man who laboured under organic disease of a serious character; he complained of severe pain in the right lumbar region, just above the situation of the kidney; his face wore an expression of intense anxiety; the whole surface of the body

was covered with a clammy sweat; the pulse was small, and almost intermittent. There were also a slight degree of singultus, and flatulent distention of the abdomen.

The first impression which arose in his mind, with reference to the cause of the foregoing symptoms, was, either that an ulcer had perforated some portion of the intestinal tube, or that a calculus had become impacted in one of the ureters. There was, on the one hand, no vomiting, and, on the other, no pain in the neighbourhood of the testicle. He gave the patient at once a large opiate, and directed that an emollient enema should be administered, to relieve the pain in the bowels, which had continued for many hours. When he saw him a few hours later the urgency of his symptoms had somewhat abated, but the singultus still continued, and the bowels had not been yet moved by the enema. He then ventured to take away a small quantity of blood from the arm, and directed calomel to be taken every second hour, together with large doses of opium. He also prescribed another emollient enema, but the patient only lived about thirty-six hours from the first accession of pain in the lumbar region. The tenderness, which was general over the abdomen, continued up to a short period before his dissolution, and he had all the appearance of a person who was dying of intense peritonitis.

On laying open the abdomen a large quantity of fetid gas escaped, and the usual anatomical signs of peritoneal inflammation were observed. A perforation was discovered in the lower part of the ileum, and presented a similar appearance to that which would be produced if a portion of intestine was removed with a punch. On examining the mucous surface of the perforated intestine, he was surprised to find but little appearance of vascularity in it. The gut exhibited no traces of tubercular deposition, but was somewhat softened in the neighbourhood of the ulcer. The thoracic viscera were healthy, with the exception of a slight bronchitic inflammation.

The question then naturally arose—what was the cause of the perforation? It could not have been tubercle, as there were no traces of scrofulous deposition anywhere observed; and he thought it could scarcely be regarded as one of those perforations which were essentially connected with fever, from its having occurred so soon after the accession of the febrile symptoms. It was evident, from the appearance of the ulcer, that it must have existed for a considerable time before these symptoms set in; and this opinion was confirmed by the irregular state of the bowels during the long period the patient was labouring under alternate attacks of diarrhœa and constipation. In his opinion, therefore, the perforation was a mere accidental complication of the fever.

Encephaloid Tumour in the Abdomen.—Professor R. W. Smith exhibited a specimen of a large malignant tumour, removed from the abdomen of a man, aged 41, who had died a few days since, under the care of Dr. Banks, in the Whitworth Hospital. In December, 1848, his left testicle, which had been the seat of malignant disease for eleven months, was removed in the Richmond Hospital by Mr.

Hamilton. The wound, however, had only just healed, when a small tumour showed itself along the course of the spermatic cord; this was immediately cut out, and, when the incision had healed, the patient left the hospital.

Towards the close of last year, he was admitted into the Whitworth Hospital, greatly emaciated, and having the aspect of a person suffering from malignant disease. A large tumour could now be distinctly felt in the region of the pancreas; it was painful, solid, and without pulsation. Shortly after his admission into the hospital, the patient died, and the *post mortem* examination disclosed a tumour about the size of half a melon, lying principally upon the front of the aorta and vertebral column, and having the pancreas closely adherent to its anterior surface. The chief bulk of the tumour lay to the left of the middle line, and the splenic artery took an exceedingly tortuous course along the front of the morbid structure, and behind the upper edge of the pancreas. A section of the tumour exhibited the usual appearances of encephaloid growths; that portion, however, which lay to the right of the aorta, contained superiorly a multilocular cyst, filled with a dark brown fluid. The interior of the cyst resembled so much dilated renal calyces as, at first sight, to give rise to the suspicion that the kidney was the seat of the disease. The aorta ran through the substance of the tumour, about one inch from its posterior surface, while the vena cava, separated to a considerable distance from the arterial tube, coursed along the front of the tumour near its right edge. The interior of the vein contained, at its lower part, coagulated blood, but above its coats were perforated by a circular aperture about a quarter of an inch in diameter, through which some of the malignant structure projected into the interior of the vessel.

In this case the tumour was not accompanied by pulsation, as happened in the instance communicated to the Society by Dr. Stokes, during the present Session(*a*). In Dr. Stokes' case, the pulsation (which was not diastolic, as in cases of aneurism) was accompanied by a distinct bruit de soufflet, which ceased, however, when the patient assumed the erect position.

It was remarkable that, at the first meeting held by the Pathological Society, viz., December 1, 1838, Dr. Graves exhibited an encephaloid abdominal tumour which lay upon the front of the aorta and vena cava, and in this instance the interior of the latter vessel was obliterated by a substance quite analogous to that of which the tumour was composed. The tumour also had a distinct, but not diastolic pulsation, accompanied by bruit de soufflet while the patient lay on his back, but which ceased when he was placed in the erect posture.

At the same Meeting, also, Sir Philip Crampton exhibited an example of encephaloid tumours in the lungs of an individual whose left testicle had been removed for fungus hæmatodes three months previously to his death.

(*a*) Page 202.

Sir Astley Cooper has delineated the morbid appearances in a case where the vena cava was found filled with a fungoid growth, four months and a half after the extirpation of the testis for encephaloid disease(*a*).

Jaundice.—Dr. Law exhibited the stomach, duodenum, and liver, with the gall-bladder and biliary ducts, removed from a patient whose death was preceded by most distressing irritability of the stomach and jaundice. The mucous membrane of the stomach was deeply congested; but that of the duodenum presented no unusual vascularity. There was no apparent obstruction in either the systic or hepatic ducts, or ductus communis choledochus. The subject of the case was a woman, aged 50, a cook, of a full, plethoric habit of body; she was admitted into Sir Patrick Dun's Hospital, on the 5th of December, 1849, affected with acute rheumatism, involving the knees, feet, and wrists, all of which were red, painful, and swollen. There was a good deal of febrile excitement, with loaded tongue, and other indications of digestive derangement. For some days she took pills, composed of blue pill, James' powder, and acetic extract of colchicum; and although she improved under the use of this combination, Dr. Law wished to try the effect of bleeding with caution, as he considered the case one of gout complicating the rheumatism. He therefore directed venesection to the extent of eight ounces. The blood coagulated firmly, and was both buffed and cupped. The bleeding produced decided relief, and was repeated in three days, but with the same caution, and was attended with the same relief. The rheumatic affection had almost disappeared, leaving behind but slight pain, for which a mixture of decoction of cinchona bark containing hydriodate of potash was ordered. Under this treatment she appeared quite convalescent; but, at the end of three weeks, she was seized with distressing sickness of stomach and retching, which she attributed to a feeling of disgust at seeing a patient with bronchitis in the adjoining bed expectorate on the floor beside her. The efforts of retching were very violent and exhausting, and as they continued for some time, resisting the means employed to restrain them, Dr. Law suspected that they were due either to gouty irritation of the stomach, or to the passage of a biliary concretion; a suspicion which the full habit of the patient, added to a bilious complexion, seemed to countenance. The day after Dr. Law expressed this opinion the patient was jaundiced. The skin was yellow, and the excretions presented the appearances usually observed in jaundice. The irritability of the stomach at length yielded to treatment. She now became delirious, and exhibited a tendency to stupor, but from which she was roused by a blister applied to the nape of the neck. It, however, again returned, and was again relieved by a blister. The jaundice was less marked, but still existed. The irritability of the stomach, although much mitigated, still distressed her a good deal. All appetite was gone. She seemed

(*a*) Part II. plate ix.

to be quite worn out, and thus expired at the end of a fortnight from the time the new set of symptoms came on, and which seemed to have so little connexion with the original disease for which she was admitted into hospital. Dr. Law remarked on the cause assigned by the patient herself for the nausea with which the fatal symptoms began, and to which the jaundice soon succeeded. Strong moral impressions or emotions were a common source of jaundice; a feeling of disgust might be supposed to operate in the same way. He next adverted to the delirium and coma which constituted such prominent symptoms during life, and considered them to depend upon the state of the blood vitiated by the bile. He was of opinion that a close analogy existed between such cases and certain renal affections in which the urea, not being separated from the blood, acted as a poison on this fluid, and gave rise to certain nervous symptoms very like those presented by animals from whom the kidneys had been removed, and whose blood, when examined, was found to contain urea. In certain cases of jaundice, also, in which the disease came on with all the violence and suddenness of an apoplectic seizure, the patient quickly passed into a state of coma, soon to be succeeded by a fatal convulsion.

Dr. Law remarked that this was a very frequent mode of death in the cholera that recently prevailed, in cases in which, the other symptoms having disappeared, the kidneys did not act, a complete suppression of urine still continuing.

Dr. Law noticed the difference of opinion existing among physicians on the subject of jaundice, whether it depended upon absorption of the bile, or upon the elements of the bile being retained in the blood, the bile not being secreted. He remarked upon the presence of jaundice while there was no obstruction in the ducts, and no evidence of inflammation in the duodenum. In such cases the existence of spasm of the ducts has been, but without proof, regarded as the cause of the jaundice. The heart, in the present instance, was remarkably soft and flabby.

Congenital Dislocation of the Head of the Radius forwards.—Professor R. W. Smith exhibited a cast and preparation of this rare malformation of the elbow-joint, and made the following observations respecting it. In February, 1840, in a communication upon the subject of abnormal elbow-joints, Mr. Adams detailed the particulars of the case of a man named Horseman, whose right elbow-joint presented an example of congenital luxation of the head of the radius upwards and outwards, and exhibited a cast, showing the external characters of the deformity(*a*); and in March, 1849, he brought before the notice of the Society the subject of congenital luxations of the head of the same bone backwards. Upon the present occasion, through the kindness of my friend, Dr. Mayne, I have an opportunity of exhibiting a cast and preparation of congenital dislocation of the radius directly *forwards*. I may here mention, that

(*a*) Dublin Medical Journal, first series, vol. xvii. p. 505.

the female who was the subject of this deformity had likewise congenital dislocations of the wrist and of the knee; to these, however, I shall not now allude, but shall confine myself to the consideration of the condition of the elbow-joint. The woman was about forty years of age, and had been long an inmate of the South Dublin Workhouse; she died of an attack of acute dysentery in the early part of 1849, and the following were the results of the examination of the left upper extremity:—

The fore-arm was flexed upon the arm at a right angle, beyond which it could not be bent, and could only be extended so far as to form a slightly obtuse angle. It remained habitually in the semi-flexed position, with the hand midway between supination and pronation; neither of the latter motions could be fully performed.

The joint, viewed upon its external aspect, presented a remarkable projection, formed by the outer condyle of the humerus, which descended so low as to be, in the semi-flexed position of the joint, nearly upon the same level as the commencement of the olecranon process of the ulna; it was, moreover, curved forwards and inwards, so as to present posteriorly a striking convexity; it was much larger and more prominent than the internal condyle, which, however, also seemed to be placed lower down than natural with respect to the ulna.

The summit of the olecranon, in every position of the joint, was placed above the condyles; but its lower portion, where it springs from the shaft of the ulna, was in a great measure concealed between these processes.

Directly in front of the enlarged outer condyle of the humerus a rounded osseous tumour could be felt, which, as it partook of every motion imparted to the shaft of the radius, was concluded to be the head of that bone; as much of it as could be felt was of an orbicular form.

Comparing, in my mind, these appearances with those observed in the case of Horseman, whose elbow-joint I had frequently examined, and who was known never to have received an injury, nor to have suffered from disease of the articulation, there was no difficulty in arriving at the conclusion, that the case afforded another example of congenital dislocation of the head of the radius; and the opinion that the luxation was congenital was further confirmed by the co-existence of the malformations of the right upper and of the left lower extremities, which I have already mentioned. There exists, however, this difference between the two cases, namely, that, in the present instance, the head of the radius is displaced forwards, while in that of Horseman, it is described by Mr. Adams as being dislocated upwards and outwards.

The muscles (which, although pale, were not remarkably attenuated) having been removed, the bones and ligaments were carefully examined. The lower extremity of the humerus presented no traces either of trochlea or capitulum, nor any evidence of these processes having ever existed. In place of them there existed a deep fossa or

excavation, into which was received the great sigmoid cavity of the ulna, in such a manner, that when the fore-arm was flexed to a right angle, the coronoid process struck against the front of the humerus, and extension was at once checked by the olecranon coming in contact with the back of the same bone.

The outer condyle of the humerus, which was much larger than natural, and curved forwards, was deeply excavated anteriorly, in such a manner as to form with the lesser sigmoid cavity of the ulna, which was also enlarged, a socket which accommodated the head of the radius, which was strangely altered from its natural form.

This process, instead of presenting a circular outline with a concave summit, resembled in form the section of a sphere, its internal portion being, as it were, cut vertically, so as to present a surface nearly flat to the altered lesser sigmoid cavity of the ulna; the rest of the head of the bone, namely, all that could be felt through the muscles and integuments, was of an orbicular shape (as in the case of Horseman), and rolled in the excavation of the humerus already mentioned, during the motion of supination, which could be carried to a much greater extent than that of pronation. Both these motions were, however, very confined, for the lower extremity of the radius was as ill adapted to their complete execution as the superior. The lower extremity of the radius, which, in the natural state, presents a concavity where it articulates with the head of the ulna, was in contact with the latter by a nearly flat surface.

The superior extremity of the ulna was twisted in such a manner that the cartilaginous surface of the greater sigmoid cavity of the ulna was directed inwards. The neck of the radius could not be said to exist, the head springing almost directly from the shaft of the bone: the reverse of what is usually found in cases of congenital luxation of the head of the radius backwards, the neck of the bone being in these cases elongated to such a degree as to render the radius and ulna of equal length. The external and internal lateral ligaments existed, but ran in a direction nearly horizontal; the former passed outwards in an almost transverse course, to be attached to an exceedingly thin, broad, and imperfect coronary ligament.

The similarity which this case bears to that detailed by Mr. Adams will be rendered evident by the following extract(*a*): "When we view the joint on its external aspect, the outer condyle is observed to be large, and placed as low down nearly as the olecranon process; above it a very conspicious orbicular eminence is seen, which moves freely with the radius when a motion of rotation is communicated to the fore-arm; the inner condyle also descends very low down; the two condyles and the lower portion of the olecranon process (in the semi-flexed position of the joint, which it ordinarily remains in) are on the same plane; the lower extremity of the humerus is probably excavated to receive the greater sigmoid cavity of the ulna. The neck of the radius rotates on the ridge of the humerus, which

(*a*) *Loc. cit.*

descends to the outer condyle, above and somewhat behind the plane of the most anterior part of which the head of the bone is placed." Mr. Adams remarks, in conclusion, that this is the third case of lateral dislocation of the radius recorded, and the first of the congenital luxation of this kind as yet exhibited to the profession.

In the same year, that is in 1840, Guérin recorded a case of congenital luxation of the head of the radius forwards and upwards(*b*), but the record is so brief and so completely deficient in details as to be of little value. It is as follows: "*Luxation de la Tête du Radius en avant et en haut*, consistant dans le glissement de cet os au-devant de l'humérus, vers la fossette coronoïde de ce dernier. Cette luxation est nécessairement accompagnée de diastase des articulations radio-cubitales et de pseudo-luxation du carpe. Nous avons eu l'année dernière, dans notre service, une jeune fille de sept ans offrant la même difformité des deux côtés."

Three varieties of congenital luxations of the head of the radius have now been established, viz.: backwards and upwards; forwards, upwards, and outwards; and directly forwards.

Malignant Tumour simulating Abdominal Aneurism.—Dr. O'Ferrall wished to place the following case on record, as one which might afford some assistance in the diagnosis of tumours. The facts of the case were as follows:

A woman, aged sixty years, was admitted into St. Vincent's Hospital, complaining of dysphagia, accompanied by severe pain, radiating from the lower third of the sternum, the point to which she referred the obstruction, towards the back, and upwards between the shoulders. These were her only complaints. She stated that she felt the food she swallowed becoming obstructed at a spot situated between the middle of the sternum and the xiphoid cartilage. The pain was of a neuralgic character, and caused intolerable suffering to the patient. At the time of admission, the dysphagia nearly amounted to an inability to swallow liquids. For a considerable period before she was admitted she had been unable to swallow solid food, and even liquids were taken with so much difficulty that, if swallowed too fast, they were immediately rejected. Her countenance bore all the appearances which were usually met with in a person labouring under malignant disease. There was nothing in the case to induce him to explore the œsophagus itself, for there was too much reason to suppose that an attempt to do so could not be productive of any advantage, whilst it might possibly be the cause of mischief. A careful examination was made, in order to ascertain the state of the abdomen and chest. The lungs and heart appeared to be healthy, but a loud and rough murmur was heard just behind the xiphoid cartilage, and about one inch below it. From the character of this murmur, the term bruit de râpe was the only one that could be fairly applied to it. The murmur was of

(*b*) Gazette Médicale, 1840.

course heard most distinctly when a moderate amount of pressure was made upon the part with the stethoscope, by which the parietes were brought nearer than usual to the deep-seated parts, and it became fainter as the instrument was pushed forwards in the act of inspiration. It was, to a certain extent, rhythmical, that is, it admitted of a division into four periods. Three distinct murmurs could be heard, and then came an interval of silence. This interval corresponded to the end of each inspiration, and he (Dr. O'F.) believed it to be due to the fact, that the ear of the observer was removed by the descent of the diaphragm to such a distance from the seat of the bruit that every fourth murmur became inaudible. When respiration was interrupted for a few seconds the rhythmical character of the murmur ceased, and every sound was heard.

The question then arose, what was the nature of the disease? The loud murmur, and the presence of the dysphagia, at once suggested the idea of a tumour of some kind interfering with the descent of the food into the stomach. But what was the nature of this tumour? From the presence of the murmur it might be suspected to be an aneurism; and this opinion would be strengthened in the minds of some pathologists, by the fact that the bruit became much fainter or inaudible when the woman was standing. However, from an early period after this woman came under his observation, he had made up his mind that she had not aneurism, but that the symptoms were owing to malignant disease. The bruit might be produced by either; and, as to the effect of posture, he had been long convinced that all abdominal bruits, proceeding from any cause whatsoever, become louder in the horizontal, and fainter in the erect position. Moreover, when the patient was placed in the prone position, and was then examined along the spine, no murmur could be detected. Lastly, the margin of the liver could be felt by careful manipulation to be thickened and irregular, and, from its condition and the appearance of the patient, he would have diagnosed malignant tubercle of the liver, if neither dysphagia nor bruit had existed. From these data he made the diagnosis mentioned, three months ago.

The progress of the case was similar to what it usually had been in other cases of the same kind. The difficulty of swallowing liquids increased, she wasted rapidly, and at length the breathing suddenly became oppressed, and pleuritic effusion supervened without any evidence of inflammation.

On opening the body after death, the œsophagus was found to be obstructed by a mass of malignant disease, which encircled a considerable portion of the tube, and reduced its caliber in a remarkable degree. A mass of the same malignant structure existed between the aorta and the spinal column, the former having, as it were, to ride over the tumour in its descent into the abdomen. Here, then, was a sufficient cause for the murmur which had been heard. The liver presented very perfect specimens of malignant tubercle.

(*To be continued.*)

MEDICAL MISCELLANY.

Cases of Small-pox complicated with Purpura Hemorrhagica. By Maurice H. Collis, M. B., F. R. C. S. I.

[An abstract of a paper read before the Obstetrical Society of Dublin, March, 1850].

During last autumn and winter small-pox was very prevalent in this city, and among the lowers orders was peculiarly severe and fatal. In the district of the South-eastern Dispensary I met with a great number of cases of all degrees of severity. The symptoms were in general of the ordinary type; but in nine cases purpura complicated the disease. On searching for information to guide me as to the treatment of them, I was astonished to find few records of such cases, and those of the most vague and unsatisfactory character; although the complication seems to be by no means rare in this country. To assist in supplying this want, as far as a description of the appearance and progress of the disease can do so, is my object in publishing the following notes; and I regret much that in the matter of treatment they can afford little, if any, aid to those whose misfortune it may be to meet with such cases.

The first, second, and third Cases were all members of the same family, residing in a small, badly ventilated room, in a very filthy court, which is a perpetual nidus for infection of all kinds. The children lay in the same bed, even after the death of one. The eldest, a boy of six years, was attacked with epistaxis on the first day of the appearance of the small-pox eruption. This stopped spontaneously, and on the third day spots of purpura made their appearance on the trunk and extremities, but none on the face. They were of the ordinary form of purpura, brilliant, well-circumscribed, red spots, not disappearing on pressure, getting darker as soon as they had reached their full development, and varying in size from a mere pin's point to that of a split pea. The pock was small, and came out badly, the skin being of a leaden hue and cold. Epistaxis returned on the fifth and seventh days, and was stopped by plugging the nares. On the seventh night it again returned, and was so copious as to cause fatal syncope before assistance could be obtained. The treatment ordered was a combination of stimulants and acids, with a little opium; but I cannot vouch for its having been followed out. Cases II. and III. were a girl, aged 5, and a boy aged 4, both with immense crops of variola, becoming confluent and mixed with purpura, preceded by epistaxis, and terminating fatally on the sixth and seventh days. The pock was from an early period of a large size, rapidly became confluent, and in

colour was a muddy white, assuming a sanious hue before death. None of these three had been vaccinated.

Case IV.—A boy five years of age, living in the next room to the preceding, presented symptoms of the same character as Cases II. and III. and died on the fifth day. He had, however, no epistaxis, though the spots of purpura were very abundant. He was naturally delicate, and had not been vaccinated. His brother, a child six months old, had a mild, modified attack. Three other children died of small-pox in this house before I went to attend there; but I could not find out whether they had purpura or not.

Case V. was remarkable in several points. The patient was a fine, healthy, English boy, four years of age, son of a soldier, well fed all his life, and had as good nursing and attendance as was possible during his illness. He had been vaccinated by Dr. Gibson when three months old, and others were vaccinated with infection taken from him; the mark on the arm also was plain. He was seized on Thursday with violent epistaxis, and lost much blood. A medical practitioner who was in attendance plugged the nares, and ordered an emetic, which brought up a large quantity of pure, fluid blood, which had been swallowed. On Friday more blood was passed from the bowels. The child was weak and feverish, and on that evening the small-pox came out. On Monday I saw him for the first time, and found a large crop of pustules over his face and extremities, but fewer on the body, with small spots of purpura scattered all over the surface, as if with a paint brush; a few of large size, but the majority the size of small pins' heads. From their colour they gave the impression of its being the second day of their presence. The general symptoms were unfavourable: pulse 156, rapid, small, and weak; breathing hurried; skin hot; the child restless and peevish; his eyes bright; lips glazed and dry; tongue foul from clotted blood; gums inclined to bleed. He complained of pain in the abdomen; the bowels had been moved, and some more dark, fetid blood passed; the urine was scanty, high-coloured, and passed with pain. To reduce the determination to the skin and bring it into healthy action, I ordered a warm bath, more for experiment's sake than from any great expectation of success; also a gentle purgative, to be followed by acids and quina, lemonade, jelly, &c. Next day the spots were larger, more numerous, and very brilliant. Seventh day.—Pock becoming confluent; bowels acting gently; no blood passed from them; mouth and tongue swollen and sore. Eighth and ninth days.—Purpura disappearing; pock very full, and confluent. He complains of pain in the head; and is dull and heavy, and very weak. Ordered the hair to be cut off, and cold to be applied to the head, and to stop taking quina. Tenth day.—All traces of purpura were gone; but there was an angry erysipelatous redness of the right arm, which was twice the natural size, œdematous, hot, and painful. The child was stupid, and squinted with the right eye, and the head was very hot. Mercurial ointment was applied all over the arm, and one leech behind

each ear, and two grains of grey powder were ordered to be given every third hour, calomel not being considered advisable from the spongy state of the gums. Next day the inflammation of the arm had gone, but the head, though relieved for a time, got worse. He became comatose, lost all power of swallowing, and died at 4, A. M., of the twelfth day of his illness. In this case vaccination did not modify the disease, which in so young a child is a most unusual circumstance. It is the only case I have met with or heard of in which purpura occurred along with small-pox in an individual that had been vaccinated; and in all the other cases it might be traced to bad diet, prolonged residence in unhealthy localities, or to a scrofulous constitution.

Cases VI. and VII. were under my care during only part of their illness. Both were large, fat, young women, of scrofulous habit, with imperfect menstruation. One had epistaxis on the fourth day. On the sixth purpura appeared in scattered spots on the extremities. On the eighth she died, of sudden cerebral effusion; the purpura having become darker during the last twenty-four hours of life. The other girl had few spots of purpura, but was loaded with small-pox. She was admitted into Sir Patrick Dun's Hospital, where she had inflammation of the larynx, which was twice subdued by leeches and calomel. She afterwards died of congestion of the brain. The purpura did not increase after the appearance of the laryngitis. The only medicine which she got while under my care was a purgative of castor oil and turpentine, which may, very probably, have checked the hemorrhagic tendency.

Case VIII., a boy aged 5, had suffered from dysentery for a fortnight previously to his getting variola, and was a sallow, unhealthy-looking child. Purpura appeared on the fourth day; he complained of violent pain in the abdomen, and in the region of the kidneys. His pulse was high, and he had all the symptoms of fever. By mistake he got a double dose of castor oil and turpentine, which purged him severely, but with no bad result, for on the third day from that he was convalescent.

A ninth Case was fatal on the second day of the small-pox; the amount of purpura was enormous; all the cutaneous and as much of the mucous surfaces as could be seen being thickly set with brilliant red spots. The small-pox did not appear until these were at their height, and then occupied all the space between them; in no place, as far as I could find, coinciding with them in situation. The fever was high; there was severe bronchitis; the breathing was difficult, and the voice hoarse. As there had been no hemorrhage, and the child had been healthy and well fed, I thought depletion would be expedient, and ordered one leech to each side of the larynx, and two to the top of the sternum; but before they could be applied he died in a sudden fit of dyspnœa, most probably from spasm of the glottis.

These cases strengthen the opinion so generally entertained at present, that purpura is not a cutaneous disease, even in that modi-

fied sense in which that term is now used; for the spots follow no regular course either of duration or of development. Some, when first observed, were no larger than pins' heads, and next day had increased to three or four times that size, and after that became darker and remained so until death, or gradually faded away. The shortest time occupied in these changes was two days; the longest, a week. In some cases the spots did not increase in size after their first appearance; in others they enlarged rapidly. In one, after becoming slightly dark, they suddenly increased in size, and became again brilliantly red. A more careful analysis may enable us to deduce some rule of progress. In five cases epistaxis preceded; in four of these the spots appeared the second day after epistaxis, and, in the fifth, not until the third day. This case was protracted, the child having been healthy previously, and making a great struggle against the disease. The remaining cases had no epistaxis; of these, one had little purpura, and it disappeared rapidly; the other two had immense crops of variola, and sank at once; the fourth had been weakened by dysentery. In the case in which epistaxis occurred three times there was no approach to absorption. The case in which the spots after becoming dark again got brilliant was characterized by great virulence, and a tendency to secondary inflammation. In one case only did the purpura precede the variola, and in this case there was no hemorrhage.

From a comparison of these circumstances we may, I think, conclude, first, that where hemorrhage precedes, the amount of purpura depends on the loss of blood. Secondly, that its occurrence without loss of blood is to be attributed to the same violent determination to the skin which causes large crops of small-pox. Thirdly, that its progress depends on a combination of both these circumstances, namely, loss of blood and amount of eruption; and, lastly, that the date of its appearance is not constant, as regards that of the pox, but that, when epistaxis precedes, it appears about two days after this symptom.

Should these conclusions be correct, there are evidently two indications for treatment: to diminish the violent cutaneous inflammation, and to impart such tone to the vessels as will enable them to bear it without giving way. For the former, I do not know that we possess any effectual agent. In one case I tried the warm bath, but with no perceptible effect. For the latter object, acids and quina, which are most relied on, appear to have no time to influence the constitution. What we want is a rapidly diffusible tonic. Turpentine has been highly recommended as such; but it was used without success in most of these cases. Still it is a valuable medicine, and will be found useful in many confluent cases, especially where the state of the bowels permits it to be combined with opium. I have often observed its use followed by a great improvement in strength, and where the pustules were of a dusky colour, and not filling properly, it seemed to check the increase of size in their base on which this depends, to make them maturate and dry up more

rapidly, and so decrease the amount of ulceration and subsequent pitting(*a*). In two of the worst cases which I ever saw recover it was used, and the amount of marking is very inconsiderable. My reason for mentioning it here is chiefly because on two occasions its employment was followed by a curious set of symptoms. After about the fourth dose, the lining membrane of the pharynx began to be inflamed; and the medicine being continued, the inflammation spread to the larynx, and, on visiting the patients next day, they were found suffering from a sort of laryngitis. The parts, as far as could be seen, were of a vivid red, not much swollen, and not at all œdematous. There were no pustules on the mucous membrane as far down as could be seen, to the irritation of which the inflammation might be attributed. Neither tonsils nor epiglottis were swollen. A few leeches removed all these symptoms, which were most likely caused by the direct action of the turpentine.

During this epidemic there were some fatal cases of œdema of the glottis; but, owing to the difficulty of obtaining *post mortem* examinations, it is difficult to form any estimate of their proportion. I am inclined to think that it is by no means an unfrequent cause of death in children(*b*); but in some cases, in which it was suspected to have arisen, the feel of the parts was so unsatisfactory and inconclusive that I cannot state so with certainty.

On the Indications afforded by the Occurrence of Intermitting Pulse during the Progress of Natural Labour. By Thomas Purefoy, M. D., Physician to the Fever Hospital and Dispensary, Cloughjordan, County Tipperary.

Mrs. C., somewhat advanced in years, of sallow complexion and slight figure, was taken in labour of her first child on the 16th of April, 1850, at an early hour in the morning. The labour was natural, and no unusual symptoms occurred, with the exception of a distressing sense of sinking, and oppression at the præcordia, accompanied by nausea and vomiting of bilious matter. In the afternoon the pulse was found to be irregularly intermitting, but of moderate fulness and good strength. The intermitting character of the pulse was most decided immediately after each expulsive effort of the uterus, at which period also the feeling of oppression and difficulty of breathing were very distressing. The labour was

(*a*) In the twenty-eighth volume of the former series of this Journal a paper was published by Dr. Neligan on the efficacy of *large* doses of oil of turpentine in the treatment of uncomplicated purpura hemorrhagica; and in my eighth case, the only one of those I have now recorded which recovered, a large dose of it was administered accidentally. However, in the complication of small-pox with purpura, as in all diseases which are obscure in their nature, I believe that no one remedy will prove specific, and that the largest amount of success will be obtained by a judicious selection and combination of such remedies as circumstances may direct.

(*b*) Some interesting remarks by Dr. Fleming on this subject will be found at page 90 of the present Number.—Ed.

safely completed by the natural efforts, at 12 at night; and the uterus having been steadily pressed down by the hand into the lower pelvis, a pad was applied immediately above its fundus, and a roller passed tightly around the hips.

The patient had not been many minutes at rest upon her left side, from which she had not turned since her delivery, when flooding commenced. Ergot of rye was immediately administered, cold applications employed, and cold air freely admitted into the bed-room; this treatment had the effect of checking the hemorrhage, which, however, soon returned again to an alarming extent. The roller was now removed, when the uterus was found much enlarged and distended by a quantity of firm coagula; these were quickly expelled by pressing firmly with the hand upon the uterus, from above downwards, and thus exciting the contractile efforts of the organ. The tendency to hemorrhage, however, continued obstinately for two hours, but finally yielded to steady pressure made with the hand upon the fundus uteri during this period, whilst a decoction of ergot of rye was three times administered at intervals, and cold applications diligently applied; aromatic spirit of ammonia was the only stimulant given. Recovery went on progressively, and the patient was able to leave her bed at the end of a week.

This case, *in itself merely*, is of little interest; but, taken in connexion with the facts detailed in Dr. Cane's paper on uterine hemorrhage, published in the sixth volume of the present series of this Journal, it is, in my opinion, of some importance, since it completely tests and verifies the accuracy and great practical value of his observations. I confess that, although practising midwifery for many years, I was not aware that the tendency to uterine hemorrhage, during or subsequently to labour, was ever indicated by an irregular or intermitting pulse, until I had read Dr. Cane's valuable paper. As the subject of uterine hemorrhage is, undoubtedly, one of the highest interest to every practitioner of midwifery, would it not be most desirable that the character of the pulse in cases of hemorrhage should be accurately observed and noted by individuals much engaged in this branch of the profession? The result of extensive and well-directed observation would at once decide upon the relative value of the diagnostic indications afforded by irregular or intermitting pulse occurring during the progress of labour.

Case of remarkable Obstruction of the Pulmonary Semilunar Valve. By Arthur Leared, M. B., Physician to the Oulart Dispensary.

On the 18th of April, 1850, I saw, in consultation with Dr. Irvine, Master F., an exceedingly delicate-looking and ill-developed boy, eight years of age, whose pinched and anxious features, causing him to appear still older, contrasted singularly with his puny and diminutive figure. All the information as to his previous history that I could glean was, that he had always presented the same appearance; that he had never exhibited the playfulness and activity natural to

infancy, and, in a word, had dragged on from his birth to the present moment an existence of the most passive nature conceivable. It was further stated by his mother that at the former period it was with great difficulty that animation was established. This description appeared now strikingly applicable to him, sitting close to the fire in a low arm-chair purposely constructed for him, with his head supported against the chimney-piece, seldom moving or speaking except from necessity, breathing quickly and with difficulty; and though presenting an aspect of great distress, he uttered no complaint, and declared himself free from pain. Dr. Irvine, however, informed me that he suffered a good deal from cough in addition to this dyspnœa, both of which were partially relieved by expectorants, together with the application of flying blisters.

On examination we found the chest narrow and prominent, the cardiac region presenting extensive dulness, while the action of the heart was strong, rapid, and somewhat intermittent; and on applying the stethoscope a most intense bruit de soufflet accompanying the first sound was audible over the whole anterior part of the thorax. The impression made upon my mind was that the case was one of mitral valve incompetency, either congenital or occurring in early infancy, with consequent hypertrophy; and in this opinion Dr. Irvine concurred. We ascertained that he was not known to have suffered from rheumatism.

The poor sufferer had latterly been gradually growing evidently worse and more emaciated, till at length, on the morning of the 12th of May, he expired; his death occurred, however, rather unexpectedly.

In the *post mortem* examination, which was made thirty hours after death, I was assisted by Dr. Irvine. The body was much emaciated, surface pale, abdomen swollen, scrotum distended with serum, but lower extremities not œdematous. On opening the thorax the cause of the prominence on the surface was at once evident, the pericardium and heart occupying much of the space of the lungs, the base of the former extending much higher than usual, while the margins of the latter were forced aside; this was the case especially on the left side, the lung being here greatly reduced in volume from the pressure. Both lungs were almost universally infiltrated with tubercular deposit, in some places advanced to suppuration; there was considerable effusion in the pleural cavities and in the pericardium; both lobes of the liver were enlarged, and it was much congested, so that when cut into blood exuded copiously. The heart was fully as large as the healthy adult organ(*a*); when removed, and its cavities opened and washed out, it was found to weigh eight ounces and a quarter. The right side was manifestly seen to exceed the left in dimensions. The ventricle here exhi-

(*a*) Dr. Williams states that the average weight of the healthy adult heart is eight and a half ounces for males, and seven and a half ounces for females.

bited in a marked degree what has been termed "eccentric hypertrophy," its cavity being much enlarged, and its walls thickened so as considerably to exceed those of the left in substance. This was particularly observable near the base of the pulmonary artery, where they measured about three-fourths of an inch in thickness. The auricle of this side was much dilated, its appendix remarkably so; the left ventricle was also similarly hypertrophied, but in a less degree; its auricle was, in proportion, remarkably small and thin. There were openings for three pulmonary veins. The foramen ovale was open at the top, the aperture being nearly one-fourth of an inch in diameter. A ribbon-like prolongation from the septum to the lining membrane of the auricle extended across it. Below and to the right was another smaller opening, across which two or three similar but very minute bridles extended, resembling miniature chordæ tendineæ. There was no irregularity in the arrangement of any of the vessels connected with the organ.

On ineffectually endeavouring to pass my finger through the pulmonary artery into its ventricle, the cause of the mischief became revealed, for, on slitting the vessel, this was found to result from closure of its orifice from adhesion of the laminæ of the valve by their edges, so as to present the appearance of a perfectly continuous diaphragm or partition, having in its centre a circular and patulous opening, measuring not more than one-eighth of an inch in diameter, with a smooth, white, and semi-cartilaginous border, particularly as seen from the ventricle. This formed the only substitute for the free valvular communication that naturally exists here. The remainder of the valve felt soft, and perhaps somewhat thicker than the aortic valve, but the tube adjoining appeared perfectly healthy, as were all the other valves of the organ.

This very rare case presents some points of great interest for consideration, especially as regards its complication with phthisis. Was the tuberculization of the lungs the direct result of abridged function in these organs, owing to the disproportioned supply of blood transmitted by the pulmonary artery, instead of simple atrophy, as might *a priori* be expected? I think it at least highly probable; and were I to speculate further on the morbid causation, without, however, entering upon the vexed question of the exact derivation of tubercular deposit, I would add, that the deficiency of oxygen in the system generally, from the diminished supply of its pabulum in the lungs, was probably more especially felt where its influence is in a normal condition chiefly exercised; and that a deposition of a lower degree of organization than, *cæteris paribus*, would have occurred with an unimpeded circulation, was the result in tissues normally so freely traversed by the vitalizing current.

It is true that the enormous heart, from its mechanical pressure, increased by the enlarged left lobe of the liver pressing it upwards, must be taken into account, as a predisposing cause of disease in these yielding organs; but we constantly find them subjected to a high degree of pressure, as from pleural effusions, without the su-

pervention of phthisis. It is worthy of remark that the inquiry, whether consumption was hereditary in the family, was answered in the negative.

If the above explanation, as regards the morbid association of phthisis in this case be admitted as correct, one direct source of the disease may be regarded as established, and so a link added to that chain of evidence, drawn from actual observation, which is still so desirable, before the proximate cause of this mysterious malady can be successfully unravelled.

In connexion with this arises the question, was the condition of the pulmonary valve the result of disease, or congenital? Both from the history of the case and the evidence afforded by examination of the valve, I consider it more than probable that it was the latter; while the great size of the heart will then be accounted for from the fact of the increased demand upon its energies being coeval with its existence.

Further, I am of opinion that the immediate cause of death was not so much from the defect in the heart, as from the supervention of phthisis, presenting, in addition to the new obstacle to the pulmonary circulation, its peculiar train of fatal concomitants.

The non-occurrence of permanent cyanosis, from the open state of the foramen ovale, notwithstanding the imperfect valvular arrangements at the apertures, and the circulation being sustained through a patulous hole, in place of an accurately fitting valve, are remarkable circumstances, although not unparalleled. It is obvious that in the latter is to be found the explanation of the degree of hypertrophy of the right ventricle, as well as that of the rapid action of the heart during life; velocity of motion, joined with quick succession of impulse, constituting the twofold conditions, by means of which only a certain quantity of fluid can be propelled through a tube of given diameter, a portion of which has been narrowed and remains pervious, instead of possessing its original dimensions, and being provided with a valve. The safety valve function of the tricuspid will explain the passive dilatation of the auricle by permitting regurgitation from the over-loaded ventricle, while the hypertrophy of the left ventricle may, perhaps, be in a great measure attributed to mere continuity of structure with the right.

The torpor exhibited by the patient, together with the enlargement of the liver, which I regard as supplemental to the pulmonary deficiency, is easily explicable by a reference to an inferior scale of beings, where the analogue of such a state of circulation must be sought for. The absence of œdema of the feet, so usual towards the termination of organic diseases of the heart, is worthy of observation. What has been already advanced, that death occurred from phthisis, rather than from the lesion of this organ, may, however, account for it. But, with regard to points of diagnosis, I confess that I cannot add anything of value; most of the symptoms and physical signs observed, such as those already adverted to, belonging equally to other lesions of the heart.

SELECTIONS FROM BRITISH AND FOREIGN PERIODICALS.

Carcinomatous Degeneration of an old Warty Tumour; Amputation and Cure. By Professor Wernher of Giéssen.

A peasant, aged 56, had his hand and fore-arm bruised in a very severe manner between the stones of an oil-mill, about fourteen years before entering the hospital. The back of the hand and the wrist were most severely injured, the fingers and the parts about the elbow joint less so. The skin was almost completely destroyed, and the bones laid bare, on the former parts. A portion of the skin, muscles, and ligaments thus torn away were immediately removed by the knife, and another part sloughed off afterwards. The inflammation subsequently spread over the greater portion of the fore-arm, and even above the elbow-joint, and destroyed considerable portions of the skin and muscles. The wound was only fully healed after the lapse of three years; the fingers, however, still remained somewhat swollen, and they, as well as the elbow-joint, became anchylosed. The tumour remained in this state for eight years. At the end of that time, that is, about three years before his admission, a wart-like tubercle began to form in the cicatrix near the wrist, which gradually increased in size, the skin becoming gradually thinner; finally it broke, and formed a spreading ulcer covered with a thin scab. New tubercles were gradually formed in the neighbourhood of the first, which followed the same course. Thus in three years there was gradually formed a tuberculated warty ulcer covered with scabs, which extended by degrees to the under side of the fore-arm and the back of the hand. The ulcer was not at first painful; gradually, however, the pain became more acute, extending over the entire arm, and during this spring it became perfectly insupportable.

When admitted to the hospital two-thirds of the fore-arm and the back of the hand were covered with a deep irregular ulcer; the remainder with hard, nodose, firmly attached tumours, which extended to the elbow, passing gradually into the normal condition of the skin. A part of the ulcer was covered with hard scab; on another was found a white, friable, cheesy mass, which penetrated deeply into the hollows of the ulcer. Other parts, again, exhibited a reddish, hard, nodal, slightly granular surface. These places bled on the slightest touch, and from time to time much blood escaped from them spontaneously. The fluid secreted by the ulcer was a very fetid, thin ichor. The periosteum of the bones was in many places exposed, especially in the neighbourhood of the wrist, and was converted into a large-celled, brittle mass. In the immediate neighbourhood of the wrist the bones appeared to have entirely disappeared. The hand was considerably œdematous, cold, and immoveable. There was complete anchylosis of the elbow-joint. The

glands of the arm-pit were not swollen. The patient had scarcely any perceptible fever, nor had he lost much flesh. His sleep and digestion were not affected, nor the functions of any of his internal organs.

Diagnosis.—From the foregoing appearances the disease was considered to be a cancerous degeneration of an old warty tumour of the kind first described by Cæsar H. Hawkins.

Treatment.—As the ulceration was continually extending, and as there was no hope that it could be arrested, and as the patient's arm was a burden to him, amputation was decided upon, which was performed by the circular incision above the elbow. The operation and subsequent treatment presented nothing remarkable. The healing of the stump was effected without any ill effects, and the patient was discharged.

Examination of the amputated Limb.—The back of the hand and of the fore-arm from the fingers upwards presented an ulcer nearly eight inches in length, and, at its widest part, nearly six inches in breadth. At the point of its greatest width it extended over the volar surface, so that only a small strip of unulcerated skin remained on the radial side near the wrist. The surface of the ulcer was uneven in the highest degree, papillated; the tubercles of the papillæ of various sizes, from an inch and more to a few lines in diameter, slightly convex, with thin edges passing into one another. Between them were ulcerated cavities, in which the diseased matter extended even to the friable necrotic radius. A part of the papillæ were covered with slightly adhering scabs; the greater portion, however, were uncovered, coloured of various shades of red, some pale reddish, some dark purplish red, as if infiltrated with blood. On the surface and between the walls of these ulcers, was a white, cheesy mass, which could be easily removed with the knife, and pressed out of the cavities. It formed a milky fluid with water. When this cheesy mass was washed off, the entire surface of the ulcer appeared covered with innumerable thread-like, pointed, pyriform papillæ, like those of condylomata. Some of these papillæ, especially on the back of the hand, were from two to four lines in length, and extended over the surface of the ulcer in the cavities to the carious parts of the bone. Their colour varied from a light flesh red to a dark purplish red. The skin along the margin of the ulcer was partly pushed up in a wall-shaped manner from the growth of the tubercles from below; a part of the skin also passed gradually into the original warty tumour, and had its surface towards the elbow thickly covered with dirty, brown-coloured scabs, as in icthyosis. The papillated masses, from sections made as well on the dorsal as on the palmar sides of the arm, seemed to consist in part of a dull white mass of little consistence, and some of a solid, bluish-white, elastic mass, full of vessels and of blood; the first formed the superficial layer; the second penetrated into the cavities between the fasciæ and the tendons, which surrounded the entire of them, and bound them one with another and with the thickened periosteum. The fat and areolar tissues had completely

disappeared. The muscular fibres were still, however, visible, but extremely thin, pale, and everywhere surrounded by the solid bluish-white tissues just mentioned, and so firmly attached to one another that the individual fibres could be separated only with great difficulty. Here and there were found between the muscles, cavities with a narrow orifice, which opened on the surface of the ulcer, which surface was covered with papillæ, and they were filled with a semi-fluid white mass. The radius was necrotic in the neighbourhood of the wrist; the sequestrum, in part entirely dissolved off, was large-celled and brittle. The vessels and nerves presented no important change. The elbow-joint was firmly anchylosed by the growth of bone. It hence appears that the internal condyle, without having been set, had grown with the shaft of the humerus.

From microscopical examination, the white, cheesy mass which covered the surface of the ulcer and filled up the cavities, consisted entirely of large cells which corresponded perfectly with epidermal cells. They were flattened, of a round, angular, rhomboidal form, larger than fat cells. All had very distinctly a round nucleus. They became somewhat thinner in acetic acid, leaving the nucleus still discernible, but did not dissolve in it, or only very slowly. These cells, as a subsequent examination showed, retained their forms very well in spirits of wine. The papillæ also consisted of cells, those near the surface being somewhat flattened, and in the interior more of a rhomboidal or round form. When a very thin section of a papilla was made, there was observed near its margin a mass of fibrous prominences, which were formed from the half-dissolved, flattened cells. It was very difficult to distinguish the nucleus in the flattened cell, even after the employment of acetic acid." In some places these flattened cells arranged themselves so as to resemble fibrous tissues, which deposited themselves concentrically on one another, and gave rise to cavities which enclosed other round nucleated cells. This cellular structure extended over the central part of the ulcer from four to eight lines below the surface, and passed gradually into a solid, pure, fibrous mass. The bone (radius) was thickened in the neighbourhood of the necrotic part, and covered with a very solid periosteum. Its medullary canal was full of somewhat thickened medulla. At some distance from the ulcer the medullary cavities were again normal. A thin section of the bone exhibited only the usual appearance seen in hardened bones, and no foreign deposition.

There can be no doubt that the disease just described was an example of that species of degeneration of an old warty tumour mentioned by C. Hawkins(*a*), under the name of warty tumours in cicatrices, and which he considers as cancer in the imperfectly developed skin of a tumour. The origin, progress, and appearance of the disease agree perfectly well with the examples given in the passages referred to. Exactly as in those, the warty tu-

(*a*) London Medico-Chirurgical Transactions, vol. xix., and Medical Gazette, 1841.

mours, which subsequently changed into a spreading ulcer which bled on the slightest touch, were derived in my cases from the old cicatrices of wounds the result of contusions, lacerations, &c. In Hawkins' cases they were cicatrices from burns, from gunshot wounds, from severe flogging, or, as in the case above described, from contusions with machinery. Sometimes the wounds and the cicatrices were only superficial in the skin, sometimes deeper, penetrating even to the bone. The cicatrix remained many years unchanged, until at length, without any external cause, or without the general health exhibiting anything peculiar, the degeneration commenced in them with the development of dry, wart-like tubercles. Hawkins gives cases in which the cicatrix remained in an unchanged healthy condition for eleven, sixteen, nineteen, twenty, and twenty-seven years, before the disease commenced. In the above-mentioned case also, eight years passed during which nothing either in the condition of the tumour and the parts surrounding it, or in the general condition of the patient, prognosticated so considerable an amount of disease. Its cause is, therefore, to be sought for in the peculiarities of the tumour tissues, which are certainly at present unknown to us; probably also in part to the influence of advanced age, under which so many new formations, at first healthy, degenerate. This cannot, however, be considered as a general affecting cause; for although the greater number of the cases given by Hawkins refer to persons considerably advanced in years, there were some who had only reached their twentieth and thirtieth year. Like Hawkins' cases mine was also at first unattended with pain; and it only became painful some time after the ulcer had formed; and, as was already remarked, the pain then gradually increased to such a degree that the patient in consequence earnestly demanded the amputation of the limb.

C. Hawkins, in his first paper, refers these warty tumours to the class of non-malignant ones, notwithstanding their tendency to spread, because the general health remained for a considerable time unaffected, and was only attacked at a later period by pain, want of sleep, and loss of fluids; because the neighbouring glands were not converted into secondary cancerous tumours; because no secondary tubercles formed in the intestines; and, finally, because experience had shown him that the disease did not re-appear after complete extirpation. In his second memoir, Hawkins so far restricts this view, that, although he considers most warty tumours non-malignant, yet adds that they sometimes assume a true malignant type, in which case the neighbouring glands are affected; the rule being, however, that they are less malignant than the greater number of skin cancers. The warty tumours in cicatrices belong evidently, as is also shown by accurate anatomical and microscopical examination, to that class of lesions which has been latterly called epidermal cancer, and which has been accurately studied by Rokitansky, Lebert(*a*), Bruch, and others. They belong, therefore,

(*a*) Physiological Pathology, vol. ii.

to the series of cauliflower-like, condylomatous growths, such as those which frequently occur at the junction of the external skin with the mucous membrane, and which are usually called cancers of the skin and mucous membrane. Some pathologists refer these tumours to the non-malignant (Albers, Lebert), because they have not the peculiar elements of cancer, while others refer them to the malignant or true cancer. Practitioners refer them to cancer, admitting, however, a more favourable prognosis than in the case of hard, glandular cancers and medullary sarcoma. It is evident that here also, as in most pathological new formations, the precise demarcation between non-malignant and malignant cannot be accurately drawn. The tumours which, during a certain period of their existence, exhibit no tendency to induce secondary symptoms in other organs, and which may be eradicated with permanent success during this period, may lose these favourable conditions at a later period and under unfavourable circumstances. Many epidermal cancers, as, for instance, of the penis, do not re-appear after a complete extirpation; but there are others which do not differ from them in any apparent property, but which nevertheless induce secondary glandular swellings, or retro-peritoneal tumours, which cannot be distinguished from secondary soft cancers, and which cause the death of the patient. We may, therefore, assume with safety that epidermal cancer of cicatrices will behave analogously to the closely related epidermal cancer on parts of the skin not cicatrized, and that, therefore, a favourable prognosis may be made in most cases; but still that, notwithstanding complete extirpation, it may again appear. In the above-mentioned case we may expect a permanently favourable result for the patient, because the absence of swelling in the glands, fever, or disease of the intestines, leads to the supposition of the disease not being wider spread.

The anatomical examination has shown the presence of a double layer of new formation: the superficial consists of cells, the under one of fibres. Both cannot belong to the same lesion; the latter being evidently the remains of the cicatrix extending to the bone, which had formed after the original contusion; the cells, on the other hand, belong to the epidermal cancer.

Rayer (*Maladies de la Peau*) considers the cauliflower growth of the warty cancer of cicatrices as the result of hypertrophy of the papillary bodies of the skin, from the analogy of similar epidermal cancers of the uncicatrized skin, as, for instance, in that of the penis and under lip, and which some(*a*) have likewise been accustomed to consider as hypertrophical growth of the papillary bodies. To this supposition it can be objected, that in such a deeply-seated cicatrix the papillary bodies should have been destroyed; that these papillæ appear not alone on the surface, but in all sinuosities of the tumour, even to the bone; and finally, in its composition, the elementary forms, which characterize the normal structure of the papillæ of the skin, are absent. If these papillary excrescences must be really

(*a*) Ecker Roser und Wunderlich Archiv. 1844.

considered as the result of hypertrophy of the papillary bodies, the latter must have been gradually regenerated during the length of time that elapsed since the formation of the cicatrix. Bruch has also remarked, that the normal cutis and epidermis sometimes extended themselves over the ulcer, as an epidermal formation, or at least that a considerable portion of it is so covered. He, therefore, advocates for these diseased growths a certain individuality and independence of the papillary bodies of the cutis. The above-mentioned case favours this view, because the papillary bodies must in any case have been destroyed by the deep-seated disorganization and cicatrization. It proves further that these formations are not confined to the lips, as Ecker supposed.—*Oppenheim's Zeitschrift für die gesammte Medicin*, vol. xli. part 3, p. 324.

[We have introduced Professor Wernher's account of this case here with the view of rendering the history of the disease, on which a paper by Professor Smith appeared in our last Number, as complete as possible. The observations now published are especially valuable from containing an account of a complete microscopical examination of the morbid growth, thereby proving beyond doubt its malignant character. The following letter, commenting on Professor Smith's essay, has been received from Mr. Cæsar Hawkins:

" *Grosvenor-street, London.*

" Dear Sir,—The last Number of the Dublin Quarterly Journal contains some observations by Dr. Smith upon the 'Warty Ulcer of Marjolin,' and also upon a paper of my own on the 'Warty Tumours of Cicatrices,' the latter having been published in the Medico-Chirurgical Transactions, in 1833, without any knowledge on my part of the remarks written by Marjolin, in 1828, till Dr. Smith did me the favour to send me his own paper a few days ago. My oversight is, however, rendered somewhat excusable by Dr. Smith having in a similar manner overlooked a supplementary account of this disease afforded by a clinical lecture given by me at St. George's Hospital in 1841, and published in the London Medical Gazette, vol. xxviii. p. 872; and I am happy to find that the result of my subsequent experience therein detailed agrees so completely *by anticipation* with Dr. Smith's observations, that if he had happened to meet with it he would have found it unnecessary to publish his recent paper.

" I beg to refer to this lecture for my detailed account of the disease, but venture also, in consequence of Dr. Smith's paper, to make the following observations.

" In my original paper, alone referred to by Dr. Smith, I said that this form of warty ulcer appeared to be a purely local malignant disease; but in the lecture I remarked that 'subsequent experience in a great many cases has confirmed me in most of what I then stated, but has shown me also that the growth of this kind of cancer in cicatrices is more malignant in its influence than I was at that time inclined to believe, and that it bears much resemblance to ordinary cancer of the skin, of which it is evidently a variety, though still it is less virulent than any other variety of cancer which I have

seen, its mildness depending, probably, on its being produced at an earlier period, in the imperfect structure of an ulcer or cicatrix, than it would be in healthy skin, with a corresponding constitutional tendency to the development of cancer on the application of the necessary excitant; and being therefore, also, less virulent in its contaminating properties on the parts around, or on the glands and system at large.'

"It will be observed from the latter part of this quotation that I do not agree with Dr. Smith in thinking that the 'warty ulcer of Marjolin' and the 'warty tumours of cicatrices of Hawkins are *precisely* the same;' they are both cancerous, but modified to a certain extent by difference of texture. I have described in this lecture the extension of the cancerous deposit into the cancellous structure of bones in cases which I had amputated, which I had not witnessed when my first paper was written, and have said that, in this texture as well as in the natural skin, 'it is not like a medullary or hematoid variety of malignant structure, but is much more like the scirrhous form of carcinoma, using this term in its generic sense.'

"I have also pointed out, as Dr. Smith has done, the occasional but very rare occurrence of glandular contamination, the instance related in the lecture being one of the very cases published in my first paper. A man, whose tibia had been injured twenty-seven years before the appearance of the cancerous ulcer, was operated on by Sir Benjamin Brodie in 1828, the ulcer and a portion of the tibia being excised; nine years afterwards the disease returned in the same part; and in 1838, having, at his request, tried escharotics ineffectually, I amputated his leg; and, the patient dying of phlebitis, I found several glands in the groin evidently enlarged to a small extent from deposit of cancerous matter.

"Rayer, alluding to my paper in the Medico-Chirurgical Transactions, in his excellent work on cutaneous diseases, speaks of this affection as simple hypertrophy of the papillæ of the skin, not being aware of the cancerous nature of the wart, shown by this contamination of the glands; for, as Dr. Smith has observed, the microscope does not demonstrate the malignant properties of this morbid growth.

"With regard to the contamination of the general system, I perceive that Dr. Smith's experience corresponds with what I have stated in this lecture. Ulceration of contaminated glands has been observed, indeed, by him, though not by myself; but by neither of us has any morbid growth been seen in other parts of the body.

"I continue to hold the opinion expressed in the lecture:—'If cancer of cicatrices is so mild in its effects as to be nearly always local; if the glands are only affected in some rare cases, and the system still more rarely becomes contaminated, although the disease has extended deeply and largely even into the cancelli of the bones, a cure may reasonably be anticipated in almost every case. But then, again, as the disease is not merely an ulcer of unhealthy character, but is essentially a morbid deposit, capable of spreading into the adjacent parts, nothing short of the entire removal or destruction of every portion of the new growth can effect this cure.'

"As regards the observations of Professor Wernher, I have only to remark on that part where he states that 'I so far *restrict* my first view as that they sometimes assume a true malignant type, most warty tumours being non-malignant;' but in reality I wish to be understood as thinking *all* these warty tumours to be *malignant*, but that very few affect the glands; and therefore I have removed a great many such locally cancerous ulcers in every part of the body, by excision and amputation, with permanent success.

"I feel assured, in conclusion, that Dr. Smith will be glad to find that my observations, published nine years ago, correspond so completely in every part with those he has himself published in the last Number of this Journal.

"I am, dear Sir, faithfully your's,
"CÆSAR H. HAWKINS.

"*To the Editor of the Dublin Quarterly Journal of Medical Science.*"]

On a new Method of opening Abscesses, without leaving visible Cicatrices. By M. LERICHE, Physician to the Lyons Dispensary(*a*).

THE inconveniences daily met with in opening abscesses by incision, or by the application of caustics, have induced me to seek a less objectionable method of effecting this object. My principal aim has been to avoid the permanent marks left by the means hitherto employed, a point of much importance when the abscess occupies the neck or bosom of the female. I shall be much gratified if I can prove to the profession, what I am myself convinced of, that if my results have not been crowned with complete success, my patients have at least been often spared the dread which always attends the use of cutting instruments.

Although the method which I propose is apparently sufficiently simple, I have not arrived at it without repeated trials, both of the use of different materials and of the mode of operating. I shall, however, give in a few words the result of my researches.

My first idea was to employ wires of iron, silver, or lead; the results were tolerably satisfactory, but their use was liable to three objections:

1st. The difficulty of procuring them everywhere.

2nd. The necessity of having a special instrument for their introduction, and the rather acute pain which the operation occasioned.

3rd, and lastly, the contact of a hard substance, irritating the inflamed and already painful tissues.

I also tried threads of hemp, linen, and cotton; all were liable to a serious objection, which induced me to discard them altogether; they became swollen by the moisture in which they were constantly immersed, and thus opposed the exit of the pus. I remarked also that their employment gave rise to a rather acute inflammation around the openings. Might not this be attributed

(*a*) Gazette Médicale de Lyons.

to the facility with which these substances become altered in their nature? It also occurred when the threads were previously waxed.

Silk thread is the material on which I have decided, from its having the following advantages over the others. 1st. It is to be had everywhere. 2ndly. It is not liable to become altered during the time it is required to remain in the abscess. 3rdly. It does not absorb the moisture. 4thly, and lastly, it does not irritate the painful parts with which it is in contact. The silk thread which I use is known in the shops under the name of twist (cordonnet).

After having shaved off any hair on the tumour, the surgeon takes a curved ligature needle, passes through its eye one end of the silk twist, then introduces the needle into the tumour, about six or eight lines from the most depending part, where it must be brought out, draws the thread into the passage formed by the needle, and retains it in this position by uniting the two ends in a knot; the entire is now covered with an emollient poultice, which, in this case, acts mechanically. The patient should remain as little as possible in bed, in order to favour the escape of the pus along the thread, an effect which takes place with difficulty in the recumbent position, when the abscess is situated on a part of the trunk or limbs. The poultices have also, in this case, the advantage of diminishing the inflammation which is excited, and which the practitioner must watch. The twist is to be left undisturbed for four, six, or eight days, according to circumstances; most frequently four days have sufficed. Subsequently, when thought advisable, the twist is removed, and the part is dressed with dry compresses, or, when necessary, with compresses soaked in aromatic wine. In not one of thirty-three buboes which had arrived at the stage of suppuration, and which had been treated in the manner just described, had I been obliged to abandon this plan for any other. In cases of simple buboes, that is, those in which the pus did not seem to possess specific characters, the cure has been effected in from fifteen to twenty days; in the opposite cases, when the orifices of the little openings ulcerated, it has occupied from forty to fifty days; and in neither case did the patient retain any trace of syphilitic infection.

When the tumour has been tardy in reaching the suppurative stage, the pus is sometimes contained in cellular pouches, in which case it may happen that at the time when one thread seems to have effected the cure of an abscess, another forms; under these circumstances a second thread must be introduced.

In other cases, the thread has brought on severe inflammation and caused intense pain. When this occurs it must be removed, and lightly astringent unctuous applications, such as Gowlard's cerate, substituted for the poultices; to these should be added the employment of general measures, baths, regimen, &c. &c.

But the selection of the means most suitable to combat the symptoms which may have arisen must, in such cases, be left to the judgment of the practitioner.—*Revue Medico-Chirurgicale de Paris, May*, 1850.

A RETROSPECT

OF THE PROGRESS OF MICROSCOPIC INVESTIGATION, AND OF THE MORE IMPORTANT RECENT CONTRIBUTIONS TO NORMAL AND PATHOLOGICAL HISTOLOGY.

BY ROBERT D. LYONS, M. B., T. C. D., L. R. C. S. I.

EX-CLINICAL ASSISTANT TO THE MEATH HOSPITAL, ONE OF THE SURGEONS TO THE ANGLESEY DISPENSARY, LECTURER AND DEMONSTRATOR OF ANATOMY IN THE ORIGINAL SCHOOL OF MEDICINE, AND HONORARY PROFESSOR OF ANATOMY TO THE ROYAL DUBLIN SOCIETY.

Of the several methods of investigation by which, during this, the first half of the nineteenth century, the science of medicine has been advanced, and so many important additions have been made to our knowledge as well of normal structure and function, as of the several lesions which are produced in both by disease, not one is entitled to more serious attention at the hands of the physiologist, the pathologist, and the practical physician, than that which reveals to us, by the aid of the microscope, the ultimate configuration and arrangement of the particles of the most complex tissue, and resolves into elements the most dissimilar what to the naked eye appears a homogeneous fluid.

While we acknowledge the deep debt of obligation which our science owes to the researches of the chemist, and fully appreciate the value of his labours, we cannot but think that the extensive and vigorous prosecution of microscopic investigation is destined to confer equally signal benefits on medicine. A retrospective glance at what has been already achieved in this department would appear sufficient to convince even the most sceptical; but it is to be regretted that an irrational conservatism, and opposition to what is new, with a profound veneration for all that the past has transmitted to us, are too often active and watchful to throw a barrier of hostile prejudice in the way of those who are bold enough to break new ground. We find that, even on the Continent, very recent writers have thought it necessary to enter at some length into the consideration of the claims which the microscope has on our attention, though neither amongst our French nor German neighbours can its application to scientific medical investigation be considered as new(*a*).

And yet, if we are to believe in a gradual progress towards the perfection of our art, the new must be ever looked for, and its advent should be hailed with gladness; not, however, that it may supersede

(*a*) Traité du Microscope, &c., par le Dr. Ch. Robin. 8vo. Paris, 1849, pp. 79, *et seq.* The following passage is deserving of attention:—

"Il n'y a, comme on le voit, dans tout ce qui précède, rien de plus que ce que nous étudions dans les autres corps, ce sont les mêmes charactères, les mêmes propriétés; il n'y a de nouveau que le maniere de les observer, qui n'est elle même qu'une modification de nos moyens ordinaires d'observation appropiées à leur petit volume."—p. 78.

the old, as proclaimed by many of its too zealous advocates with an exaggerating enthusiasm, perhaps never wholly separable from the introduction of a new dogma; but that, with new aids superadded to the means we are already in possession of, we may be the better able to undertake the investigation and solution of difficulties that have hitherto baffled our best energies. And who is there so confident in the powers of his art, that will venture to assert that it needs no amelioration, that it has reached its point of culmination? If there be such, let him reflect on the many occasions that the most scientific principles of diagnosis have failed to detect an existing lesion, that the most judiciously directed treatment has been unsuccessful; let him but look on the long category of nervous diseases, and sum up the amount of his knowledge of their causation and their pathology, or the value of his skill in their treatment.

Though our preface be apologetic, it can hardly be deemed superfluous, especially in the pages of an Irish periodical, issued from the Irish school where every department of medicine is represented, and cultivated with success, save one, and that one, as we firmly believe, destined to exercise a powerful influence on our views of the most abstract as well as the most practical questions. We believe that we are justified in saying that no original communication of any importance has been made to histology, or any collateral branch of microscopic investigation, by an observer from the Irish school; though, as we are fully aware, many of our physicians and surgeons have occupied themselves in verifying the observations of others, and in no few instances have acquired practical skill in the employment of this instrument, and made useful applications of the results thus obtained in the practice of their profession(*a*). It may, however, be anticipated, that before long the attention of the Irish school will be fully awakened to the importance of the subject, and that many will be found amongst us ready and willing to engage in this interesting department of medical investigation. Our object in the present retrospect has been as much to bring the subject prominently forwards, as to give a succinct though brief account of some of the more remarkable contributions to histology, which have been recently made in the English and Continental schools. The limited space which can be afforded to communications like the present in a journal so fully occupied as this with subjects of a more directly practical nature, prevents us from giving as complete a resumè of the state of microscopical science as we could wish; it is to be hoped, however, that the several

(*a*) It is well known to most of our readers that the late Dr. John Houston, of this city, occupied himself very assiduously at microscopic investigation. Drs. Carte, Aldridge, Hill, Moore, Steele, Fleming, &c. &c., possess good instruments and are excellent observers. The last-named gentleman made an interesting communication, on the subject of urinary deposits, to the Surgical Society, at its last meeting, and has on many occasions favoured us with opportunities of examining the urine in several abnormal conditions.

contributions to histology that we are about to bring under consideration will be found both interesting and important.

The systematic treatise of Quekuett, which was brought under review in a former number of this Journal, enters so fully into the consideration of the mechanical arrangements of the microscope, that we feel it unnecessary to do more at present than refer to its pages such of our readers as may be anxious to learn any particulars of manipulation. A work of somewhat similar scope has been published(*a*) by M. Chas. Robin, author of the treatise "Des Végétaux qui croissent sur l'Homme et les Animaux."

Though it is no part of our present intention to describe either the microscope itself or any of its accessory apparatus, we shall borrow from the treatise of the latter author some practical hints which may be of value to those who are actually engaged in making investigations. The experience of M. Robin is directly opposed to the opinion maintained by some, that the prosecution of microscopic investigation is injurious to the organs of vision, and he does not hesitate to say, "Depuis Leuwenhoëck, qui conserva d'excellents yeux jusque dans une extrême vieillesse, tous ceux qui se sont beaucoup servis du microscope s'accordent sans exception à reconnaître que jamais ils n'ont ressenti le moindre trouble visuel." If we but reflect, as this author remarks further on, that the light of the microscope is, for the low powers, scarcely greater than that of the sky or a lamp, by reason of the small degree of concavity of the reflecting mirror, and that, as we raise the power of the object-glass, the amount and intensity of the light diminish proportionably, we see no reason why the habitual use of the microscope should tend to injure the visual apparatus. At all events, there is no ground for supposing that the eyes would be more liable to injury from this use of them, than from constant reading or writing, which are equally fatiguing occupations.

Amongst the embarrassments which the inexperienced microscopic observer meets with (they have occurred over and over again to the writer), may be enumerated his mistaking for constituent parts of the object he is investigating, the several flaws, scratches, and innumerable imperfections of the ordinary glass slides, as also the presence of dust and extraneous matter. Occasionally, when the eye is brought very near the eye-glass during a protracted and careful examination, the movement of the lids throws the eye-lashes in front of the pupil, and they assume the appearance of large filaments crossing the field. But a source of error much more likely to escape detection will be found in the so-called *globules and filaments of the eye*, which do not depend on a too strong impression of the retina by the rays of light, as supposed by some, but will be found to exist in both eyes of every individual who looks through the microscope, being subject to certain varieties in dif-

(*a*) Du Microscope et des Injections, par le Dr. Ch. Robin. 8vo. Chez J. B. Baillière, à Paris, 1849.

ferent persons. We are indebted to M. Robin(*a*) for a very satisfactory account of this phenomenon, of which we purpose freely to avail ourselves. When we examine the field of the microscope, without placing an object in focus, a mass of small, perfectly round globules, all nearly equal in size, may be observed. They cover all parts of the field, except about a sixth externally, and a space somewhat smaller within. Two or three tortuous very pale filaments are seen a little external to the centre of the mass of globules, a few of the latter adhering to them. The mass of globules is limited without by a flattened line or filament, somewhat brilliant in the centre, appearing of the size of a demi-millimetre, and either straight or slightly curved. Within it is limited by a filament more brilliant than the preceding, and remarkably flexuous, and folded on itself. *All the globules and filaments move together.* There appear to be two planes of globules, the one nearer to the eye with sharper outline; the other deeper, paler, more distant, and with their borders more undefined. These two planes sometimes move in opposite directions, but only through a small space, and quickly resume their places. They are in constant motion, and may be ascertained to obey the movements of the head of the observer, remaining stationary when the latter is fixed for an instant with both hands. The filament which limits the mass of globules externally can be brought to the centre of the field, and it may be then seen that there is a certain number of globules placed outside it. The internal tortuous filament can also be removed, and then external to it will be seen one or two other filaments, equally tortuous and brilliant, directed obliquely towards it. The globules are perfectly round, close to each other, and appear about a demi-millimetre in diameter. They present in the centre a brilliant point, surrounded by a dark, well-defined circle, which is itself surrounded by a second and last external concentric ring, as brilliant as the central point. Those of the deeper plane differ only in being less defined, some of them are in contact with, and impinge on one another, so that their dark borders touch. Besides these globules, some persons see others, larger and more transparent, which do not always occupy the same place in the field of vision. The external straight filament is brilliant in the centre, the borders being more obscure and less defined; it appears about one or one and a half millimetres in size, no globules adhere to it, and it is impossible to say whether it is hollow or full. The internal filament differs from the preceding only by its flexuosity, which causes it to occupy more space in breadth but less in length, and makes it more evident when brought to the centre of the field. The filaments placed amongst the globules are much more narrow than the preceding, they are two or three in number, tortuous, and about the length of a quarter of the field. They are not always so readily perceived as

(*a*) This writer informs us that M. Donné, in his Cours de Microscopie, Paris, 1844, in 8vo., has given a very elaborate description of these globules and fibres. See also Atlas de Cours de Microscopie, Paris, 1845, in fol. pl. xx. fig. 83.

the larger ones, their borders being less marked, and less brilliant, at the same time that the globules encircle and appear to adhere to them. These globules are ordinarily disposed in pairs, and in contact one with another, each pair, however, being separated from the next by a certain interval.

It is unquestionably of the highest importance that we should be able to distinguish these little bodies from any part of the object we are examining; and, in general, no difficulty whatever will be experienced in doing so. When we consider that they follow the motions of the head, and are not affected by changing the positions of the glass slides, or by any movements communicated to the stage, we see at once that they must be referred to the eye of the observer. Hence the necessity on the part of the latter of making himself thoroughly acquainted with their figure, position, and the peculiar modification which they may possibly be subject to in his own person. They have been, and may be, to many a source of painful apprehension and uneasiness, giving rise to the opinion that the organs of vision were threatened with disease. It cannot, therefore, be too generally made known, that the phenomenon is one experienced by all who make examinations with the microscope; that the conditions which produce it are universal; and that there is no reason for fearing that cataract, or amaurosis, will be the reward of patient and protracted microscopic investigation. As to the cause of these *globules and filaments of the eye* being seen under the microscope, much difference of opinion still exists. M. Robin appears to agree with M. Donné in thinking, that it is in the liquor Morgagni we must look for their real seat; it would appear to us, however, more probable that they are due, as remarked by Wallace, to the filaments and globules which the investigations of Pacini, Treviranus, Hanover, and others, have proved to exist in the retina. We consider it quite possible that the posterior wall of the eye may reflect light, and thus give an image of itself, in the same manner that objects are seen in the bottom of a river through the water; that in fact the eye may perform the triple office of twice transmitting light, bringing it to a focus, and seeing it.

The work of Mr. Quequett contains a very excellent description of several varieties of micrometers, and gives judicious rules for the estimation, by their assistance, of the value of the magnifying powers of the different object-glasses.

The two processes hitherto most frequently in use on the Continent are, according to M. Robin, *the method of the camera lucida and of double vision;* which consists in throwing, by means of a camera lucida, the magnified image of an objective micrometer (whose subdivisions are known) on a rule divided into millimetres, placed at the distance of distinct vision. By noting how many millimetres on the latter are covered by each hundreth of a millimetre of the micrometer, the magnifying power is thus found directly. The second process consists in looking with one eye at the subdivisions of an objective micrometer placed under the microscope, while with the

other we regard the divisions of a rule or the points or a compass. The images of the two objects, painted separately on each eye, are thus superposed one on the other in the nervous centres ; and with a little habit, it may be easily ascertained how many of the subdivisions of the rule are covered by a single division of the magnified micrometer.

Several sources of inaccuracy are stated by M. Robin to exist in both these methods, these he has detailed at length in his work (*a*); and he has accordingly proposed the following *method by the ocular micrometer*, which appears to answer all requirements, both as to simplicity and accuracy. It consists in employing an ocular micrometer, the superior glass of which magnifies exactly ten times. The micrometer placed in the focus of the superior glass of this ocular is one centimetre or half a centimetre, of which each millimetre is divided into ten parts. These tenths of a millimetre, being magnified ten times, equal each a millimetre. It is consequently a decimetre, or a demi-decimetre, each of whose subdivisions is equal to a milimetre, which is placed permanently in the ocular. Consequently, if an objective micrometer be placed under the microscope, and that, in examining with the ocular, each hundreth of a millimetre of the first is magnified so as to cover three divisions of the second, we learn that the microscope magnifies 300 times.

The following method, which is but a slight modification of that proposed by M. Robin, has been adopted by the writer. It presents the advantage of great simplicity, and requires the use of only one micrometer, and with a little practice will enable the young microscopist to make himself acquainted with the powers of the several object-glasses and eye-pieces he may chance to possess; a knowledge which it is the more necessary he should be able to procure for himself, as almost all the instruments in use and on sale in this city are unprovided with any scale or registered description of the powers of the several glasses. It will be necessary in all instances to possess an objective or stage micrometer, whose subdivisions are known; with this, an ordinary eye-piece, and one of the circular glass slips used for covering objects, we are in possession of abundant means for estimating the powers of the various object-glasses; and if a little care be used in the manipulation, a very considerable degree of accuracy may be obtained. The circular glass slip may be extemporaneously converted into an ocular micrometer, by marking off on it, from a rule, with a diamond, or a finely pointed pen, any of the smaller subdivisions of an inch. Thus marked, it may be passed into the eye-piece by unscrewing the ocular, and be allowed to rest on the stop or diaphragm; the ocular being now replaced, we proceed to ascertain its power, and the consequently increased dimensions of the divisions of the glass slip, which may be done in the ordinary way, by looking at them with one eye, while the other is thrown on the subdivisions of a rule. These interspaces, being large, are

(*a*) See his Treatise on the Microscope, pp. 134, 135, *et seq.*

easily compared, and being superposed one on the other, as above described, the magnifying power of the ocular is thus obtained. If the objective micrometer be now brought into focus, we can easily see how many of its subdivisions correspond to one or more of the spaces which we have marked off, and the power of the object-glass is thus readily found.

For low power, and the comparison of tolerably large divisions of the micrometer and the rule, no difficulty will be experienced in ascertaining the magnifying number of a particular object or eye-glass, by the *method of superposition*, or that of looking with one eye through the microscope, and with the other at a rule, and at most only a few trials will be necessary in order to attain very considerable accuracy; but it will be found widely different when we come to deal with high powers and small divisions, and hence the value of M. Robin's method, and the modification of it just proposed, in which, though the preliminary step is made by ascertaining the power of the ocular by the method of double vision, another and certainly a more accurate process is employed for estimating the power of the object-glasses, which necessitates the comparison of minute subdivisions, in which, of course, any error would be less likely of detection. As to any source of error which might possibly arise from placing a slip of glass between the ocular and field-glass of the eye-piece, it must be so very trifling as not to deserve any notice. By selecting a glass whose surfaces are neither convex nor concave, but as nearly as possible flat, the amount of deviation will be altogether inconsiderable.

By a reference to the tables given in the works of Robin and Quekett, it will be seen that the number 800 represents the highest magnifying power which has been obtained for the object-glass by Nachet, a distinguished optician of Paris. In this, no account is made of the influence of the eye-glass, which would, of course, add considerably to the power. While with the $\frac{1}{75}$th inch object-glass, and the eye-glass A, manufactured by Ross, of London, a magnifying power of 600 is obtained; the same object-glass, giving with this maker's eye-glasses B and C, respectively, 870 and 1400, as the magnifying powers.

With powers far lower than these, however, many of the most useful and interesting investigations can be made. "The magnifying powers from 100 to 300," says M. Robin, "serve for studying the bones, the teeth, the hairs, the hair-bulbs, and the glandular culs-de-sac, but only in what concerns their grouping in each *acinus:* the study of their epithelium demands higher object-glasses." We think, however, that this author has elsewhere over-estimated the value of the very high powers, and also the facility of recognising by their aid, and distinguishing the several varieties of abnormal formation:—"La prétendue impossibilité de distinguer les globules de pus, des globules blanc du sang, des corpuscules du tubercule et une foule d'autres erreurs, tiennent à la même cause (les faibles grossisements)."—p. 172.

We shall next proceed to the consideration of some of the more recent contributions to NORMAL HISTOLOGY.

Development of the Anatomical Elements in General.—The following table has been constructed by M. Robin, to show the several relations existing between cells, which he considers the most simple, and least *animal* elements.

1. In the Ovum. Elements of transitory tissues or *embryonal cells*, formed by *segmentation* of the vitellus, whence results the birth of the embryo, and which terminate

A. In Vegetables. All by direct metamorphosis into elements of definite tissues, persisting thus in the state of cellule during the entire existence of the being.

B. Amongst Animals. *a.* Those of the superficial layer of the serous lamina of the blastoderma solely become metamorphosed, after the manner of vegetable cells, into elements of products (cells of the amnios, epithelial cells, &c).

b. All other embryonal cells terminate by dissolution.

2. In the Tissues of the fully formed Being. Elements of tissues which persist during the entire life of the individual, whence results its growth. They grow:

A. In Vegetables. In the state of cellules, being formed by germination, and undergoing metamorphosis as in the embryo. They terminate at the death of the being, or by reabsorption during life.

B. In Animals. *a.* The elements of *products* (epithelium, &c.) grow in the state of cells, undergoing a direct metamorphosis into *horn*, *nails*, and other products, in a manner similar to all corresponding embryonal animal cells and all vegetable cells. They terminate by desiccation, and fall off only at death.

b. The elements of fundamental *tissues* (muscles, skin, &c.), or the tissues properly so called, grow without passing through the state of cell, and without undergoing metamorphosis; they grow in the blastema resulting from the dissolution of embryonal cells, or in that which transudes from the vessels. They terminate either in death or resorption.

The formation of a nucleus on a pre-existing nucleolus is, according to Günsburg, a very rare occurrence. The nucleoli appear for the first time in the nuclei, after the action of acetic acid; and their independent origin first takes place with the formation of the cell from the nucleus. The well-known granular appearance of animal cells is first observed, as Kölliker remarks, on the addition of water; in their recent condition, the most of them contain, instead of a nucleolus, only a clear fluid. Kramer considers the nucleus of the blood-corpuscles of the frog to originate in the finely granular residue of the cell-contents, the yolk-granules, which collect together in a heap in the middle of the cell, and thus melt down into the clear-edged nucleus. From this author's history of the development of the frog, and the embryo, Henlé deduces the following interesting observations on cell-genesis in general. The

vesicles scattered through the yolk of the egg, which, as Vogt has discovered in alytes, originate in the germinal vesicle, form themselves from its granular contents. The granules of the latter, of the size of the human blood-copuscle, unite together in masses of three to four, at first, to which afterwards more are added, and, being thus of greater circumference, become surrounded with a clear membrane. The author calls the bodies thus formed, cells, and the granular heaps enclosed in them nuclei. The latter disappear in part after the formation of the membrane. At the period of segmentation, when the yoke has assumed the so-called blackberry form, from two to four of these vesicles are enclosed in the spherical bodies of which the yolk consists. He considers these bodies as supplied with an outer membrane, on account of their elasticity, by which, after alteration of their form from pressure, their former figure returns again. This membrane he believes to have demonstrated by treating the spherical bodies with water; but his description of them agrees very much with the well-known characters of albuminous globules, which may be observed scattered through water in the examination of many animal tissues.

Perty establishes a subdivision of ciliæ into automatic and voluntary, the one kind, proper to the higher animals, endowed with a constant movement, which always takes place in the same direction, the other constituting the locomotive apparatus of lower animals, móved by a physical impulse. Amongst these vibratile threads, which are known as the long, undulating locomotive organs of the infusoria, and the sporules of the algæ, this author places the tails of the spermatozoa(*a*)

Adipose Vesicles.—As far as regards the development of adipose vesicles, they are not, in the opinion of M. Robin, formed by metamorphosis of embryonal cells; on the contrary, it is only in the last periods of their development that they assume the form of vesicle, which is thus, in place of their first, their last state of evolution. They are first formed of three or four oil-drops, having each a diameter of about $0^{mm}{\cdot}004$, grouped side by side. The volume of each of these groups augments little by little, by the formation of new drops alongside the first; and it is only when the mass attains the volume of an adipose vesicle ($0^{mm}{\cdot}940$ or $0^{mm}{\cdot}050$), that a membrane is formed around the drops, which little by little unite into a single oily mass. They commence to appear about the fiftieth or sixtieth day, but the length of time occupied in their formation is unknown. Thus the mode of general formation of adipose vesicles is not precisely analogous to that of cells, properly so called. This formation commences long after the disappearance of the embryonal cells, and it does not differ from the mode of formation of the other elements of the constituent tissues(*b*).

(*a*) Leistungen in der Histologie, Von Henle ; Canstatt's Jahresbericht der Medecin, erster band, p. 27, *et seq.* Erlangen, 1849.

(*b*) *Vide* Compte rendu des Seánces de la Société de Biologie pendant le Mois de Decembre, par M. Segond, Secretaire ; Gazette Médicale de Paris, No. 9, Mars 2, 1850, p. 168.

Development of Cartilage.—Professor Meyer, of Zurich, has published a long and interesting memoir on the transformations which cartilage undergoes. This author concludes, from the result of his observations, that cartilage is but a transition, a step which must lead to products more advanced and better defined; that there does not exist a permanent cartilage, and that this substance must be regarded as in progress of development, and destined to pass into an osseous or a fibrous mass, or to disappear by softening. The *cartilage cell*, while young, is small, encloses a nucleus which is distinguished with difficulty, and a grumous fluid. It may be round, angular, or fusiform, and when completely formed, can give birth to other cells. The number of cells which the cartilage contains at its origin does not appear capable of augmentation, except by the development of mother cells. The growth of this substance, therefore, is due to the increase of the intermediate substance (hyaline of authors), at first existing only in small quantity, as well as to the enlargement of the mother cells, which extend themselves in proportion as new ones are formed within them. In the progress of ossification, the inter-cellular substance, after it has remained for a time homogeneous, becomes ossified by the deposit of calcareous salts in large or small grains. The second process, transformation into fibrous tissue, may sometimes precede the first, but can never follow it. The cellule must have attained its full development before it becomes ossified; its thickened envelope then becomes impregnated with calcareous salts, and thus constitutes the wall of an osseous cell. When, on the contrary, ossification commences before the cell envelope has increased in volume, the salts are deposited on its entire surface, or fill all its cavity(*a*).

New species of Anatomical Elements which are found in the Medullary Canal of Bones.—Under this head M. Robin has laid a communication before the Society of Biology, in which he has pointed out the existence of two histological elements of bone, hitherto undescribed. He says

1st. There exists in all bones, short, flat, or long, besides the adipose cells, the vessels, and the finely granular amorphous matter, a particular kind of cells, which may be called *medullary cells*, because they are proper to the medullary tissue of the bones. They are either spherical or a little polyhedral, have a diameter of $0^{mm}{\cdot}015$, to $0^{mm}{\cdot}018$; they are transparent, with sharp borders; they all enclose a nucleus, which is spherical, regular, transparent, and with a well-defined border, having a diameter of $0^{mm}{\cdot}006$ to $0^{mm}{\cdot}007$. Between the nucleus and the cell wall exist granules and molecules which vary in quantity, but are constant. These cells are more abundant in the young subject than in adults, constituting in the former, with the vessels, almost the entire of the marrow of the bones.

(*a*) Müller, Archiv. für Anatomie und Physiol., t. iv. 1849; *vide* Archives Générales de Médecine, t. xxiii. p. 64, Mai, 1850.

2nd. In the long bones, as well as in the short, but in smaller quantity in the latter, may be found another species of anatomical element, which it is more important to recognise than the preceding, because it sometimes constitutes, by itself alone, certain bony tumours. Some tumours of bone, considered by pathologists as cancerous, enclose, not cancer cells, but a special element, characterized by large plates or flattened lamellæ, sometimes polygonal, sometimes irregularly spherical, having a diameter of at least $0^{mm}{\cdot}050$ to $0^{mm}{\cdot}080$. These plates are finely granular, and are remarkable by their nuclei, which are from six to ten in number, contained in the thickness of the plates, and giving them a character at once special and easily recognizable. These nuclei are $0^{mm}{\cdot}009$ in length, and $0^{mm}{\cdot}005$ in width; they are ovoid, and contain one or two nucleoli, accompanied by little molecular granulations. M. Robin has had occasion to examine many tumours of this kind, which constituted *spina ventosa* of the tibia. M. Lebert and M. Vosse (of Christiana) have also met with specimens.

In the opinion of M. Robin, however, these bodies constitute normal elements of the medullary tissue of bone. They may be found in greatest abundance between the external surface of the marrow and the internal face of the canal. They are much less numerous than the cells first described, or than the adipose vesicles, and are more abundant in the bones of young subjects than in those of adults or old men. Both species of elements exist in the bones of all the domestic mammalia. It is by the local growth, in great abundance, of these lamellæ, that certain tumours, hitherto considered cancerous, are formed(*a*).

On the Structure of an Epulis of the Inferior Maxillary Bone.—At a subsequent meeting of the Society of Biology, M. Robin presented a tumour of the size of a little nut, which had led to the removal of a part of the inferior maxilla, from the belief that the disease was cancerous, but which in reality presented none of the succus characteristic (?) of this degeneration. On examining a portion of the tissues of the surface of this tumour, M. M. Robin and Dionis found in it the *polynucleated plates* above described as constituting, in the opinion of the former of these observers, normal elements of the marrow of bone. From the result of this examination they diagnosed that the disease took its origin in the osseous tissue of the maxilla, and not in the periosteum as first supposed. A section of the tumour showed in fact that it originated in the bone, and had engaged half its thickness. There was no cancerous element; the morbid tissue was exclusively formed of the following homœomorphous elements:—1st, very numerous polynucleated plates; 2nd, fibro-plastic elements (nuclei and fusiform fibres of Lebert); 3rd, cellular tissue; 4th, capillary vessels and molecular granules. The greater number of the tumours known under the name of epulis, says

(*a*) Societe de Biologie; *vide* Gazette Médicale, No. 51, p. 992, Dec. 22, 1849.

M. Robin, consist of the polynucleated plates and fibro-plastic elements, and spring from the bone: others originate in the periosteum, and are purely fibrous and fibro-plastic. The one and the other are consequently homœomorphous. In like manner various tumours of the tibia, the femur, &c., growing either from the compact tissue, or from the medullary canal, and which are often taken for examples of cancer(*a*), are homœomorphous, and consist principally of the polynucleated plates.

Structure of the voluntary Muscular Fibre, and of the Heart, in the different Classes of Animals.—An important memoir has been published on this subject by M. Lebert, from which we are induced to make a somewhat lengthened extract, as both the name of the author and the nature of the subject warrant us in regarding it as of the very first interest in transcendental histology. In this department of medical science M. Lebert is already distinguished by his researches on the formation of the heart, which were conducted with the assistance of M. Prevost, the late illustrious physiologist of Geneva, and published in the Annales des Sciences Naturelles.

In the opinion of M. Lebert, four different stages may be observed which the voluntary muscular fibre passes through in an ascending scale, before we arrive at the complete texture of the tissue, which, by its contractions, executes the functions of locomotion.

The first stage is that of *motility*, without muscular fibre. In this condition all the envelope of the body of an animal can contract, enlarge, and even execute active movements of progression and natation, without our being able to detect the presence of fibres, granules, striæ, or cylinders, which even the strongest magnifying powers fail to show under the microscope. Here we have movements analogous to those observed under other circumstances, in animal and vegetable bodies; such are the vibratile ciliæ of the epithelium on the surface of the body of many embryos, and the movements of the spermatic threads, which, in the opinion of M. Lebert, *have been so long wrongly regarded as animalcules.* Something analogous is met with in the autonomic movements of the sporules of the algæ.

Thus at the bottom of the animal scale are found the general properties, which, however, are subject to remarkable modifications, but yet this tissue wants a special molecular base. This first stage of muscular development may be termed the *anhystic tissue of spontaneous movement.* It is met with in all the class of infusory animalcules, properly so called, in many polypes, helminthides of the class of cystoides, and of some inferior neumatoides.

The second stage of muscularity is that in which the fibre is found imbedded in the transparent intermediary substance. These fibres, without forming bundles, are, however, disposed so as to constitute muscular planes, sometimes superposed in parallel layers,

(*a*) Gazette Médicale de Paris, No. 13, Mars 30, p. 251.

sometimes crossing at right angles, and forming around the different apertures of the body circular layers, which can effect alternately their closure and dilatation. This may be denominated the *fibrous or fibrillar tissue of spontaneous movement.* It is to be found in the polypes, annelidæ, and many mollusca.

The third degree of evolution of muscular movement is that where the fibres are grouped so as to form cylinders, or fasciculi, and where the muscular planes give place to true muscles, more and more different from everything that surrounds them. This, which may be called the *cylindrical muscular tissue*, obtains very generally among the mollusca and the annelidæ.

The fourth degree is the most perfect, and such as we find it in the muscles of voluntary motion from the mollusca to the highest vertebrata. It is to be observed, however, that no very accurate limits exist, and that this, the fourth degree, may be found amongst certain polypes, acalephæ, &c. As, in the nerve, the primitive nervous tube is the last essential element of the apparatus of innervation, so the muscular cylinder is its analogue as regards the functions of voluntary motion. The term *primitive cylinder* is given to all that portion of the muscular tissue which is clearly defined in all its circumference, or which under the microscope shows two longitudinal contours, much more clearly marked and isolated than the longitudinal fibres of the interior cylinders, which are mostly furnished with transverse folds on their surface. These cylinders, long, parallel, and flattened from before backwards, are united and grouped to form muscular fasciculi. In their manner of grouping there is something peculiar which cannot be too well studied. They are united together, to the number of four, five, or upwards, into secondary cylinders, which are often furnished with common transverse folds, in addition to those possessed by the cylinders within. The muscular cylinder is, therefore, composed of a surface with its transverse folds, and an interior, containing the primitive fibres, with their fibrillar and inter-fibrillar molecular granules. The surface, as before remarked, is usually furnished with transverse striæ, to which with justice a sufficiently great importance is attributed. These striæ, however, will be found wanting in the muscular substance of the heart in many of the superior animals, and even in some of the muscles of voluntary motion in very young vertebrata. These striæ are constituted by rounded slightly elevated folds, which pass around the flattened cylinder, without communicating one with another like the curves of a spiral. They are not the accidental results of relaxation or contraction, but are permanent. They may, however, be seen more or less near, distant, or distended, according as the cylinder is relaxed, contracted, or distended. To these variations of distance corresponds their appearance as a single or double line. *They do not at all traverse the entire thickness of the cylinder*, and consequently do not transform it into a pile of disks, as has been supposed by some. The internal surface of the cylinder is united to the intermediary semi-transparent substance,

which binds together the primitive fibres. These latter are very fine, either alternately opaque or transparent thoroughout; and the granules, thus distributed in their interior, sometimes show still much transparence in their centre when they are examined with high powers. Their juxtaposition in neighbouring fibres may simulate the appearance of the true transverse striæ.

All the constituent parts of the muscular fibre have been subjected to measurement by M. Lebert. The mean size of the primitive fibre varies between $0^{mm}\cdot001$, and $0^{mm}\cdot0015$; he has not observed them to exceed $0^{mm}\cdot002$. The size of the non-striated cylinder may vary between $0^{mm}\cdot004$, and $0^{mm}\cdot02$. The primitive cylinder of the striated muscles varies between $0^{mm}\cdot005$, and $0^{mm}\cdot1$. The size of the transverse striæ is between $0^{mm}\cdot001$, (simple linear) and $0^{mm}\cdot0025$.

The nutrition of the muscular fibre is in general effected by the nutritive transudation from the blood-vessels, the distribution of which in general follows the direction of the cylinders, in the interstices of which the capillaries are often lodged. Innervation of muscles is observed to take place by the distribution of the nervous terminations in the muscular substance. Wagner is of opinion that the fibrillæ of the nerves enter the very substance of the muscular cylinder, an opinion in which M. Lebert does not fully coincide, as he considers that it is certainly not their only mode of termination, he having himself observed numerous primitive nerve-tubes coursing along between the planes of muscular cylinders, and turning on themselves to constitute loops everywhere isolated.

The coloration of muscles depends evidently, according to the same authority, on a particular pigment, since they are met with of a red colour in animals with white blood, and white in animals with red blood(*a*),

The subject of the contraction of muscular fibre has long occupied the attention of the physiologist; but as it belongs more especially to the department of *physiological physics*, we cannot at present enter into the consideration of the many important contributions which have been lately made to it, particularly by the German school. In Canstatt's Jahresbericht, and the more recent numbers of Henle and Pfeufer's Zeitschrift für Rationelle Medicin, will be found many interesting papers on this subject.

Structure of the Uterus.—Under this head a long memoir(*b*) has appeared from the pen of Dr. Franz M. Kilian. His observations have been conducted on a very extensive scale, and for the purpose of following up the development of the organ from its earliest stages, very young animals have been selected. A very close investigation has been made into the structure of its serous covering, which appears to consist of a hyaline or structureless membrane, with nuclei imbedded in it. The nuclear-formation (*die kernbildungen*) appears

(*a*) Gazette Médicale, No. 49, p. 938, Dec. 8, 1849.

(*b*) Zeitschrift für Rationelle Medicin, viii. band., i. & ii. heft, p 53; ix. band., i. heft, p. 1. Heidelberg, 1849.

to present certain modifications: some of the nuclei are small, round, naked, and without nucleoli (earliest stage); others larger, of a vesicular form, containing one, two, or more nucleoli. A third kind may be observed with granular contents, and either with or without nucleoli. Besides the round or oval nuclei just described, others will be found fusiform, elongated, and, in many instances, presenting fibrous prolongations, some of which bifurcate, and unite with the fibres of neighbouring nuclei, forming a close network. On their interior the walls of the uterus are coated with a thick layer of epithelium, or naked granular nuclei. The substance of the mucous membrane contains a quantity of utricular glands, for the most part rectilinear in direction, and bound together by a fine cellular tissue; a few, however, may be observed of a spiral form. When the serous membrane is removed from a portion of the walls of the uterus, the proper texture of this organ is brought into view; it appears as a soft reddish mass, consisting of nuclei imbedded in a *glassy* gelatinous blastema.

In the lithographic drawings which accompany Dr. Kilian's paper will be found excellent delineations of the above described elements, as well as of many others which want of space alone prevents us from describing in detail. Indeed the whole investigation appears to have been prosecuted by the author with that untiring and energetic spirit of research which is so characteristic of all the observers of the German school, and to which medical science is so deeply indebted, notwithstanding all the imputations that ignorance and unfounded prejudice have heaped on labours which are invariably characterized by profound and erudite research, and philosophic minuteness.

Glands of the Alimentary Canal.—Professor Thompson, in a communication to the Annals of Anatomy and Physiology, proposes the following classification of the glands occurring in the alimentary canal, which he thinks may be all placed under the four following orders, admitting of ten subdivisions.

I. Vesicular; composed of entire vesicles (or small bladders), usually closed.
   1. Aggregated glands of Peyer in the small intestine.
   2. Solitary ditto.
   3. An occasional state of the next mentioned glands.

II. Follicular; forming small bags or cavities, usually open pits.
   1. Of the large intestine; constant.
   2. Of the stomach; frequent, but not constant.

III. Tubular: composed of membranous tubes, closed at the remote ends, and usually simple.
   1. Of the small intestine; follicles of Lieberkühn.
   2. Of the large intestine.
   3. Of the stomach.

IV. Racemose; tubes simple or sacculated (and vesicles), arranged in clusters round a central stalk or duct.
   1. Cardiac-œsophageal.
   2. Duodenal of Brunner.

The author further considers that the columnar epithelium, which everywhere exists on the surface of the mucous membrane, extends for some way into the interior of the follicular, tubular, and racemose glands; but no true lining of this kind, different from their secreted contents, exists in the vesicular glands; these last he supposes to be rather a modification of parent secreting cells, than true glandular cavities.

The secreted product of all these glands, presenting to the naked eye the appearance of a greyish, grumous, semifluid mass, exhibits when viewed under the microscope, a variety of cells mixed with globules, granules, and molecules of various size. In the healthy tubular gastric glands the cells are, during the intervals of digestion, accumulated in considerable quantity in the tubes, so as to cause the membrane of the tubes to bulge out at somewhat irregular intervals, and thus to give them a sacculated appearance. These gastric cells are poured out in large quantity on the surface of the mucous membrane during digestion, and may also be frequently seen to exude anew after death, being united by imbibed water, so as to form a layer of substance indefinitely termed mucus, which has been often noticed covering the inner surface of the stomach. The microscopic examination of this layer sometimes affords a most interesting view of the gastric cells in all stages of development or decadence; smaller cells existing within the larger, to the second and third progeny; and thus very probably furnishing, as Frerichs suggests, the source of that ferment, or analogous matter, which, along with the acid ingredients of the gastric fluid, is essential to the solvent action of stomachal digestion(*a*).

Structure of the Spleen.—A very erudite paper, with many interesting original observations on the structure of this organ, will be found in the Annals of Anatomy, from the pen of Dr. Saunders. The author enters largely into the history of all previous research on this subject. We select the following enumeration of the different microscopical elements which the more recent observers consider to constitute this organ.

1st. Granular corpuscles (Gulliver, Henlé, Ecker, Simon, Sharpey). They are about the size of the red blood corpuscles, are sometimes of a reddish colour (Sharpey), and more or less irregular.

2nd. Caudate corpuscles (Sharpey, &c.), or fusiform cells.

3rd. Cells with nuclei more or less granular (Henlé), considered to be rare and accidental.

4th. Yellow-coloured pustules, cells, or corpuscles (Hanfield, Jones), contain blood-globules (Ecker, Kölliker).

It is a general opinion that the spleen consists of nuclei or cy-

(*a*) On the Structure of the Glands of the Alimentary Canal, by Allen Thompson, M. D., &c., Professor of Anatomy in the University of Glasgow; Goodsir's Annals of Anatomy and Physiology, No. i. p. 33, *et seq.* We regret being unable to give the entire of this interesting memoir, which is accompanied by very excellent lithographic drawings.

toblasts, which never reach the higher development of the nucleated cell (Simon, Jones, &c.)

5th. A homogeneous membrane around the Malpighian glandulæ is denied by most observers (Henle, Oesterlen, Simon, &c.) It has been stated to exist by Ecker; but as he demonstrated it by the application of potassa, which dissolves animal textures into a homogeneous matter, this observation is uncertain.

6th. Muscular fibres of the involuntary kind, and differing in different animals, have been described by Kölliker in the proper membrane and trabeculæ of the spleen.

From the result of his own observations, Dr. Saunders concludes that the Malpighian body consists of a hollow sphere, formed by, 1st, externally, a fibrous membrane containing blood-vessels, and attached by a vascular pedicle; 2nd, internally, a granular membrane, the internal surface of which is lined by a layer of large nucleated cells, while free nuclei or corpuscles with a homogeneous or granular plasma fill its interior. It is a closed sac containing secreting elements.

The Pulp or Parenchyma of the Spleen is distinguished under the microscope by a peculiar brown colour, even after the blood disks have been completely washed away. We may observe in it corpuscles and granules, with a few granular cells, coloured particles, red or yellow, of a crystalline appearance; peculiar fusiform or spindle-shaped cells, which are placed in a semimembranous plasma(*a*), intersected by a capillary plexus, and crossed by bands of trabeculæ. The corpuscles of the pulp resemble the saccular corpuscles, in being pretty nearly of the same size, in being hollow, nearly circular, translucent, and in containing several granules in their interior. The entire of this paper will be found worth consulting by those who may be interested in the study of this organ.

In the foregoing pages we have noticed but a few of the many important additions which have been made to normal histology since the publication of the systematic works of Mandl, Donné, Vogel, and others. We shall next proceed to consider briefly some of the more recent observations in Pathological Histology.

New Products consist entirely, according to Günsburg, of elements which are identical with those of the normally developed tissues, in appearance, form, and mode of development. These elements are cells and fibres. The well-known division into homologous and heterologous tissues is, in the opinion of this observer, not in accordance with pathological experience. In fact, if a close examination of pathological cells or fibres be instituted, there may always be observed in them a tendency to *raise* themselves to normal formations of known form.

All that is produced by disease is under the normal form which appertains to health. It may, therefore, be stated, in accordance

(*a*) On the Structure of the Spleen, by William B. Saunders, M. D., Edinburgh; Goodsir's Annals, No. i. p. 49, *et seq.*

with this doctrine, *that pathological cells are identical in their development with normal cells.*

The material from which pathological cells are developed is the blood serum, and is therefore identical with the medium of general nutrition, and consequently possesses a proper capacity for assuming definite form (*gestaltungfähigkeit*). The disposition of the cytoblastema to cell-formation is not a purely chemical act. The difference in form of pathological growths is to be attributed to, 1st, the difference of the blastema; and 2nd, the difference of the *locus* of formation. The difference of blastema influences the configuration of cells by its chemical qualities; experience shows that the highest form of cell stands in relation to the quality of the fibrine of the blood. The formation of cells may take place under different conditions. As arrests of development the following are given as examples by this author.

1st. Arrest of development of cells at the formation of nuclei.

2nd. The imperfect development of the nucleus after the full growth of the cell.

3rd. When the cell remains in its condition of full development.

Excessive growth is observed—

1st. When the cells are accompanied by an immoderate nuclear formation.

2nd. When they pass into fibres.

3rd. When the cells pass into a tissue similar to that of the parent structure.

Of cells arrested in the stage of nuclear formation, Günsburg regards tubercle as an example. The typhic product he considers as an instance of cell-formation with imperfect nuclear development; while the cancer-cell is looked upon as the highest grade of individual cell-formation, though it does not possess the faculty of undergoing a greater development(*a*).

According to Bock, *new formations* are either of an organic or an inorganic nature. The former follow the laws of formation of organic life, and reach sometimes a higher, sometimes a lower degree of evolution, constituting, when they attain the highest grade, a normal tissue; the latter are developed in obedience to the laws of pure chemistry, and the most perfect form they are capable of attaining is that of a crystal. Both kinds of new formation can pass into each other, and can even exist together. The organized new products contain the protein-compounds and fat; they form fibres and cells. This author makes a further division into homœoplastic and heteroplastic. The stroma which is observed in many growths may be either structureless or fibrous, sieve-like or forming a network, and the following varieties will be found in different formations:—1st, a fluid stroma, with granules, nuclei, and cells, which differ essentially from the normal; 2nd, a fluid or semi-fluid stroma,

(*a*) Leistungen in der Pathologischen Anatomie, Von Albers. Canstatt's Jahresbericht, Zweiter Band, p. 37, Erlangen, 1849.

with fibrous cells adhering to each other, or united at their extremities; 3rd, a fibrous stroma with cells; 4th, a fibroid or callous tissue; 5th, a tissue exactly analogous to the true physiological, and either with or without a vascular formation.

The pus corpuscle is regarded by Günsburg as a cell which, by the excessive development of nuclei and its consequent breaking down, is prevented from reaching a higher stage. This view, as remarked by Albers, is altogether new. In this department much yet remains to be done before we shall be in a position to appreciate the value of particular form and size, and the absence or presence of nuclei and nucleoli in cells. It must be evident to the most superficial observer, that a certain relation exists between the complexity of arrangement of the particles of any morbid growth, and its period of development, as also its position in any scale which expresses the comparative organization of different pathological products.

The breaking up of cellular and fibrous tissue into molecular particles, and their passage into their organized and unorganized constituents, is the last act in the process of organic transformation. The nucleus will be observed to pass into granules, pigment, or fat; the fibre gives way in layers, becomes varicose, and covered with adherent molecular fragments. The inorganic particles, in obedience to chemical affinity, group themselves into small adherent masses, or become crystallized(*a*).

Development of Pathological Cysts.—An extensive memoir on this subject, by Dr. Carl Bruch, will be found in Henle and Pfeufer's Zeitschrift. From an examination of the facts adduced, this author concludes that the following phases may be observed in pathological cyst formations. An effusion of fluid which may be serum, blood, colloid matter, or an exudation destined to become pus, takes place into tissues of either normal or pathological origin; the surrounding cellular tissue becomes thickened by pressure and extension, or by the help of the coagulable nature of the effused fluid. A simple cyst is thus formed, whose walls, in course of time, become smooth, and invested with an epithelium. In these walls new cysts are formed in a precisely similar manner, which increase in size, and in their growth encroach on one another so as to become united. From the walls of these cysts, when existing in extensive organized pathological products, differently formed growths will be found to spring, which more or less fill up their cavities. And thus, if in a fibrous tumour solitary interspaces are found, it constitutes the *simple cystosarcoma;* other modifications being respectively the *Cystosarcoma phylloides*, and *C. proliferum* of Müller(*b*).

Pathological Pigmentary Matter.—The variations in colour observed in diseased organs and tissues depend, according to Virchow, on the number and state of fulness of the blood-vessels, and the

(*a*) Jahresbericht, *loc. cit.*
(*b*) Zeitschrift für Rationelle Medicin, band. viii. p. 91, Heidelberg, 1849.

thickness and molecular arrangement of the tissues, and their influence on light, or on the presence of colouring matters within the organs and tissues. These colouring matters are, in general, of three kinds: coloured fat, changed or unchanged biliary matter (cholepyrrhin), and hæmatin. This last, which is capable of becoming extravasated from the blood-corpuscles, and may then undergo various changes, appears to be a very frequent constituent of the different pathological pigments. It may be observed in the stroma of many tissues as large irregular masses, sometimes circular, but more generally angular and pointed; at other times it will be found as a small powder, not unlike the ordinary uric acid sediment. The circumference of the little bodies is generally very sharp and dark, their surfaces brilliant and lustrous, which shows their thickness. In some instances they will be observed perfectly crystallized; the crystals vary in thickness, and under the microscope may be observed either of a tabular form or as rhombs; their colour is either brick-red, a golden yellow, or a deep ruby; they may be found free, in masses, or even inclosed in cells. Virchow has repeatedly met with them in cicatrices, imbedded in a thick layer of elastic fibres; they have been also observed in the Graafian vesicles, the brain, the skin, the spleen, and in the joints(*a*).

Epithelial Tumour.—Ecker has called attention to a class of tumours of the lip, which he has distinguished by the name of bastard cancer of the lip (cancroid growth, Bennett). It is believed at present that the seat of these tumours is not limited to the skin, but that they occur also on the mucous membrane. Rokitansky has found them on the mucous membrane of the larynx, the trachea, the stomach, the intestines, and the bladder; Küss has seen them on the dorsal aspect of the hand: they may be met with on the cheeks, the lips, the prepuce, the scrotum, and it is probable that the chimney-sweep's cancer is but an epithelial tumour. It is also pretty generally considered that these tumours are not of a malignant nature; Lebert regards them as benign, because they contain no cancerous globule; Sédillot is of the same opinion, as they do not exhibit fibrous or cancerous cellules. Rokitansky and Bruck, however, do not agree in these opinions. The most important question concerning them, in the opinion of Dr. Gorup-Bezanes, and which he has attempted to resolve by a series of observations, is, not whether these tumours may be benign, but whether they are altogether exempt from malignity. Three cases reported by this author give the following results.

First observation.—Rapid development of tumour in less than a year, ulceration, ichorous suppuration, pains; re-appearance six months after extirpation, with characters still more menacing. The tumour ulcerates; the subjacent bone is attacked to the extent of two inches; the roots of the teeth are laid bare.

Second observation.—Indolent ulceration, slow progress until exciting means were adopted.

(*a*) Jahresbericht, *loc. cit.*

Third observation.—Ulceration, pain, rapid progress; return six weeks after operation, with pain; cachectic aspect; new operation, to which succeeded a tumour of the neck.

These examples suffice to show that the too generally received opinion, as to the non-malignity of these tumours, is unfounded, and that they may exhibit characters of the greatest malignity(*a*).

In the fourth volume of the Jahresbericht der Medicin will be found a most extensive and able report on the subject of tumours, both benign and malignant, by Professor Albers, of Bonn. The opinions of the most able micrographers as to the possibility of arriving at a diagnosis of cancer from histological characters are considered at length, but we are unable to do more than allude to the publication of this report. We would also particularly call attention to the article on cancer and hypertrophy of the stomach and pylorus, by Dr. Carl Bruch, of Heidelberg, to which an entire number of Henle and Pfeufer's Zeitschrift is devoted (viii. Band. iii. Heft, 1849).

With these few notices of contributions to pathological histology, we are compelled at present to close our Retrospect. To do full justice to the subject would have demanded considerably more space than we have been able to command in the present Number. We hope, however, to be enabled at some early opportunity to return to the subject. Of the value which we attach to this department of research some evidence will be found in the introductory remarks of this article, and we sincerely trust that our predictions with regard to the cultivation of this branch of medical science in the Irish school will not prove unfounded. In the schools of London and Edinburgh not a few medical men have risen to fame and eminence from the prosecution of this method of research, while amongst our continental brethren the study of the microscope has long occupied a prominent position in medicine, and proved highly conducive to the advancement of professional knowledge. May we in Ireland not be slow to follow such worthy examples.

(*a*) Archiv. fur Physiol. Heilkunde, 1849; *vide* Archives Generales de Médecine, t. xxiii. p. 76, Paris, Mai, 1850.